

**QUANTUM RESOURCES MANAGEMENT, LLC**  
Chatom Gas Production, Treating, and Processing Facility  
Facility No. 108-0009  
Chatom, Washington County, AL

**STATEMENT OF BASIS**

The proposed Title V Major Source Operating Permit (MSOP) second renewal is issued under the provisions of ADEM Admin. Code R. 335-3-16. The above named applicant has requested authorization to perform the work or operate the facility shown on the application and drawings, plans, and other documents attached hereto or on file with the Air Division of Alabama Department of Environmental Management, in accordance with the terms and conditions of this permit.

Quantum Resources Management, LLC was issued its existing MSOP on May 17, 2006 with an expiration date of January 22, 2011 for its Chatom Gas Production, Treating and Processing Facility (Chatom Plant) located in Chatom, Washington County, AL. Per ADEM Rule 335-3-16-.12(2), an application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of the permit. The renewal application was received on July 22, 2010. Additional information was requested and received from the facility on September 13, 2010. The proposed MSOP would expire on January 22, 2016.

**PROPOSED MODIFICATIONS**

The facility has requested that the following modifications be made during this renewal: reduce the frequency of sampling the hydrogen sulfide (H<sub>2</sub>S) concentration (using the Tutwiler procedure) in the acid gas stream going to the sulfur plant from once a week to once a month, reduce the frequency of sampling the H<sub>2</sub>S concentration (using the Tutwiler procedure) in each process gas stream routed to the emergency flare from once a month to once every four months, remove the requirement to test the H<sub>2</sub>S concentration (using a hand held monitor) in the sales condensate tank vapors and glycol dehydration regeneration vent, and remove the compliance assurance monitoring (CAM) requirements from the emergency flare.

Based on the justification provided by the facility, the Department would approve the request to reduce the frequency of H<sub>2</sub>S sampling for the acid gas stream sent to the sulfur plant from weekly to monthly. The facility would be able to demonstrate that over a long period of time the H<sub>2</sub>S concentration in their acid gas stream would differ very little from week to week. In the September 7, 2001 permit modification, the facility was allowed to reduce the frequency of sampling from daily to weekly. The historical data provided during this modification demonstrated that the H<sub>2</sub>S concentration would remain consistent over several weeks.

The facility would also be able to demonstrate that the H<sub>2</sub>S concentrations in the process gas streams which could be sent to the emergency flare would remain consistent over time. The existing permit allows monthly sampling; however, based on the information provided, the facility should be able to demonstrate a consistent H<sub>2</sub>S concentration by sampling at least once every four months. The existing permit allows the frequency of sampling to be modified upon Departmental approval.

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The request to remove the monthly requirement to sample the sales condensate tank vapors would be approved by the Department. This request should be granted because prior to the condensate being sent to the storage tank, the condensate would go through a stabilization process which would remove H<sub>2</sub>S and drive off light hydrocarbons liquids that would flash or evaporate into the atmosphere during transfer. The facility would be able to demonstrate that over time there has not been any H<sub>2</sub>S present in this stream.

The request to remove the monthly requirement to sample the glycol dehydration regeneration vent would also be approved by the Department. The gas streams that would enter the glycol dehydration unit would be gas that has been previously sweetened (H<sub>2</sub>S removed). If at anytime a detectable concentration of H<sub>2</sub>S was present in the gas stream that could pass through the glycol dehydration unit, the process would be shut down. Since there would be no H<sub>2</sub>S present in this gas and the facility has been able to demonstrate this over a period of time, this requirement should be removed.

Because the facility would be required to meet the requirement to burn any gas stream containing 0.10 grains of H<sub>2</sub>S per standard cubic feet of gas (0.10 grains of H<sub>2</sub>S/scf), the compliance assurance monitoring (CAM) requirements from the facility's emergency flare would not be removed from the permit. The basis for this requirement would be outlined in the flare section of this document.

The renewal would address the facility's applicability to newly promulgated rules which have occurred since the issuance of its existing MSOP. The area source requirements for 40 CFR 63, Subpart HH, "*National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities*", which were promulgated by EPA on January 3, 2007 would be addressed. The area source requirements promulgated by EPA on August 20, 2010, for existing stationary reciprocating internal combustion under 40 CFR 63 Subpart ZZZZ, "*National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*" would also be addressed.

## **PROCESS DESCRIPTION**

Gas would be produced and gathered from nearby gas wells located in the Chatom gas field. Upon entering the facility, the sour, field gas would be separated from the liquids (i.e. condensate and water) in parallel trains of high (serving high-pressure wells) and low pressure (serving low-pressure wells) three-phase (i.e. gas, condensate, water) gas-liquid separators. Sour gas leaving the low-pressure separator would be compressed and sent to an amine contactor tower for sweetening. The sweetened gas would be compressed upon leaving the amine contactor. The compressed, sweetened, wet gas would then go through a glycol dehydration unit, which would decrease the water content and/or the freezing temperature of the gas stream. The sweet, dried gas would then enter a de-ethanizing unit to remove the propane and heavier components. The de-ethanized liquid stream would then be sent to fractionation units which would fractionate the liquid stream into propane, butane and a pentane mix. The sweet gas leaving the de-ethanizer would be sent to a natural gas pipeline for sales. The gases exiting the condensate stabilizer and the rich amine flash tank would be compressed and sent to the amine contactor for sweetening.

The impure amine that leaves the amine contactor tower would be sent to the amine regeneration tower for purification. Gas driven off of the impure amine in the regeneration

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process (i.e. acid gas) would be sent to a three stage Claus sulfur recovery unit which would convert the  $H_2S$  into molten elemental sulfur. The tail gas leaving the sulfur recovery unit would be sent to the thermal oxidizer for burning.

The condensate exiting the high and low-pressure separator would pass through a stabilizer to lower the vapor pressure of the respective fluid stream. The liquids would then be sent to storage until sold and transported via truck. Overhead gases from the storage tanks would be recompressed and sweetened.

Water leaving the inlet three phase separators and the condensate flash tank would be sent to the water separation system where any gas that may have remained in the water would be separated out and vented to a dedicated flare for burning. The water would be sent to gas blanketed storage tanks prior to being disposed of.

The 40.2 MMBtu/hour auxiliary boiler would provide steam for plant wide distribution, the 16.5 MMBtu/hour stabilizer reboiler would provide heat for the stabilization process, and the 20.8 MMBtu/hour process heater (also known as the salt bath heater) would be used to provide hot regeneration gas for the NGL unit.

Six (6) 375 BHP, two (2) 458 BHP, two (2) 580 BHP, three (3) 750 BHP, and two (2) 145 BHP gas fired engines provide various compression and electrical generation needs for the facility.

A sour water flare, dedicated to burning all vapors emitted from the salt water separating unit, and an emergency flare would be located at this facility.

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## **FACILITY-WIDE EMISSIONS**

Applicable facility-wide regulations for the Chatom Plant are found in the following table:

Emission Point	Description	Pollutant	Emission Limit	Regulations
Sources:				
Petroleum Production Facility that handles gas or refinery gas containing 0.10 grains of H <sub>2</sub> S/scf		H <sub>2</sub> S	Burn gas	Rule 335-3-5-.03(1)
			20 ppbv offsite	Rule 335-3-5-.03(2)
Onshore Natural Gas Processing Plants				
All affected facilities: Compressors in VOC or wet gas service Group of all equipment Dehydration Units Sweetening Unit LNG Unit		VOC	LDAR work practices	40 CFR 60 Subpart KKK

Chatom Plant's applicability to the state and federal regulations would be discussed in the following sections.

### **STATE REGULATIONS**

#### **Applicability:**

- ADEM Admin. Code R. 335-3-5-.03(1), "*Petroleum Production*" applies to the control of sulfur compound emissions from each petroleum production facility that handles gas or refinery gas that contains more than 0.10 grains of hydrogen sulfide (H<sub>2</sub>S) per standard cubic foot (scf). The Chatom Plant would handle sour gas that contains 0.10 grain of H<sub>2</sub>S/scf or more; therefore, the facility would be subject to the applicable requirements of this regulation.

#### **Emission Standards:**

- In order to meet the applicability requirements of ADEM Admin. Code R. 335-3-5-.03(2), all process gas containing greater than 0.10 grains of H<sub>2</sub>S/scf shall be burned to the extent that the ground level concentrations of hydrogen sulfide are less than twenty (20) parts per billion beyond plant property limits, average over a thirty (30) minute period.
- ADEM Admin. Code R. 335-3-5-.03(3), would define the sulfur dioxide (SO<sub>2</sub>) emission allowable for in Category II counties. Washington County, where the Chatom Plant is located, would be classified as a Category II county. The allowable SO<sub>2</sub> emissions would be based on the amount of available sulfur and the H<sub>2</sub>S content in the acid gas stream as

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specified in this regulation. The maximum available sulfur for the Chatom Plant would be 169 long tons per day (Ltons/day) as specified in the facility's permit application; therefore, the permitted emission allowable for SO<sub>2</sub> would be 0.08 pounds of sulfur dioxide per lb of sulfur processed (lbs. SO<sub>2</sub>/lb. S processed). This allowable would be increased to allow for dry acid gas streams containing less than 60% H<sub>2</sub>S.

- Each process gas stream that has to be vented to the atmosphere should be first captured and sent to the thermal oxidizer or emergency flare to be burned. Except for a period not to exceed 15 continuous minutes while depressurizing and/or emptying equipment and when reduced pressure will not allow flow of gas to a control device, venting to atmosphere would not be allowed.

#### **Compliance and Performance Test Methods and Procedures:**

- Compliance with the requirement to burn gas containing 0.10 grains of H<sub>2</sub>S/scf would be demonstrated by routing and combusting tail gas from the sulfur recovery unit in the thermal oxidizer, routing and combusting vapors from the sour water tanks in the sour water flare, and routing and combusting acid gas from the amine sweetening unit in the emergency flare during emergencies. Compliance would also met by sampling and testing all sour gas streams that can be vented to atmosphere for its H<sub>2</sub>S content (mol %).
- Compliance with the requirement to maintain the ground level concentrations of hydrogen sulfide at less than twenty (20) parts per billion beyond plant property limits averaged over a thirty (30) minute period shall be met by maintaining the H<sub>2</sub>S feed rate at less than or equal to 2,440 lbs/hr, by maintaining either the sulfur dioxide emission rate or the sulfur recovery efficiency within the allowable range, and by maintaining the thermal oxidizer firebox temperature.

#### **Emission Monitoring:**

- Monitoring to demonstrate compliance with the requirement to burn gas with more than 0.10 grains of H<sub>2</sub>S per scf would be met by monitoring the emergency flare and thermal oxidizer as required by the existing permit. This renewal will not result any changes to monitoring for these units.

#### **Recordkeeping and Reporting Requirements:**

- The facility's record keeping and reporting requirements would be met by performing monthly calculations for the engines, boilers, thermal oxidizer, and flares.

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**Applicability:**

- ADEM Admin. Code R. 335-3-14-.04 "*Prevention of Significant Deterioration (PSD) Permitting*". The Chatom Plant was issued its first construction permit on May 1, 1973 and operating permits on April 30, 1974. The permit issuances occurred prior to PSD regulations being promulgated by EPA on June 19, 1978 and being adopted by the state on December 10, 1981; therefore, the facility would be considered a grandfathered source. In 2002, grandfathered sources were required to demonstrate compliance with PSD regulations using Best Available Retrofit Technology (BART) if they met all of the following criteria: commenced construction between August 7, 1962 and August 7, 1977, had the potential to emit 250 TPY or more of visibility-impairing air pollutants, and was listed as one of the 26 source categories under PSD that are found in 335-3-14-.04(2)(a).

The Chatom Plant commenced construction in 1973, had the potential to emit 250 TPY or more of visibility-impairing air pollutants, and was equipped with a sulfur recovery unit which is listed as one of the 26 source categories. On August 3, 2006, the facility addressed the sulfur recovery units' applicability to BART. The facility was able to model out BART by demonstrating that this unit would not have a significant impact on a Class I Area.

In order for the facility to keep its status as a grandfathered source with respect to PSD, it would be required not to exceed the significant emission rates found in 335-3-14-.04(2)(w) for each new project at an existing major stationary source. Based on review of the facility files, the facility's status as a grandfathered source has not changed since the facility has not performed any significant modifications that would trigger its applicability to PSD regulations.

**Applicability:**

- ADEM Admin. Code R. 335-3-16-.03, "*Major Source Operating Permits*". The Chatom Plant has been deemed a major source of criteria pollutants. The sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), volatile organic compounds (VOC), and nitrogen oxide (NO<sub>x</sub>) emissions from the facility have the potential to exceed the 100 tons per year threshold for criteria pollutants; therefore, the facility is subject to the applicable requirements of this regulation for criteria pollutants. The facility wide hazardous air pollutants (HAPs) emissions are not expected to exceed the 10 TPY threshold for a single HAPs or the 25 TPY threshold for a combination of HAPs; therefore, the facility would be deemed an area source of HAP emissions.

## **FACILITY-WIDE EMISSIONS**

### **FEDERAL REGULATIONS**

#### **New Source Performance Standards (NSPS)**

##### **Applicability:**

- 40 CFR 60 Subpart A, “General Provisions” would be subject to the Chatom Plant provided that the facility is subject to one of the applicable subparts found under this subpart.

##### **Applicability:**

- 40 CFR 60 Subpart LLL, “Standards of Performance for Onshore Natural Gas Processing: SO<sub>2</sub> emissions”, would not be applicable to the Chatom Plant. Although the Chatom Plant would be equipped with an amine sweetening unit that removes carbon dioxide (CO<sub>2</sub>) and H<sub>2</sub>S from the sour gas, the units were constructed prior to the January 20, 1984 compliance date for this regulation. No major modifications have been made to the sweetening unit since its construction; therefore, the facility would not be subject to the requirements of this regulation.

##### **Applicability:**

- 40 CFR 60 Subpart KKK, “Standards of Performance for Equipment Leaks of Volatile Organic Compounds (VOC) From Onshore Natural Gas Processing Plants”, would be applicable to the Chatom Plant since the plant meets the definition of a natural gas processing plant. A natural gas processing plant constructed after the January 20, 1984 compliance date would be subject to this regulation. The natural gas process plant equipment at the Chatom Plant was constructed prior to the compliance date for this regulation; however, there were modifications made to the plant after this date that the Department determined triggered the facility’s applicability to this subpart. In a letter dated July 13, 1998, the facility agreed to comply with the requirements of this subpart. Phillip Petroleum Company, the owner of the Chatom Plant at that time, did not agree with the Department’s determination of their applicability to this regulation; however, the company was not able to demonstrate that they were not subject to the applicable requirements of this subpart.

This regulation would be applicable to affected facilities that include compressors in VOC service or in wet gas service (40 CFR §60.630 (a)(2)) and the group of all equipment within a process unit (40 CFR §60.630 (a)(3)). Equipment would be defined in this subpart as pumps, pressure relief devices, open-ended valve or line, valve, compressor (except reciprocating compressors in wet gas service (40 CFR §60.633 (f))), and flanges or other connectors that are in VOC service or wet gas service. The facility’s dehydration units, sweetening unit, field gas gathering system, and liquefied natural gas unit would

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also be covered by this subpart since they would be located at this facility (40 CFR §60.630 (e)).

**Emission Standards:**

- To demonstrate compliance with the applicable requirements of 40 CFR 60 Subpart KKK, the emission standards found in 40 CFR §60.632 shall be met, except as provided in 40 CFR §60.633. The emissions standards for Subpart KKK refer to 40 CFR 60 Subpart VV, “*Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry*”.

**Compliance and Performance Test Methods and Procedures:**

- Compliance with the emissions standards of this subpart shall be demonstrated through the review of records and reports, review of performance test results, and inspection using the methods and procedures specified in 40 CFR §60.485, except as specified in 40 CFR §60.633(f) (40 CFR §60.632(d) of Subpart KKK and 40 CFR §60.482-1(b) of Subpart VV).

**Emission Monitoring:**

- Compliance with the monitoring requirements of this subpart shall be demonstrated by meeting the inspection and monitoring requirements specified in 40 CFR §60.482-1 through §60.482-10 of Subpart VV. Sampling connection systems are exempt from the requirements found in 40 CFR §60.482-5 (40 CFR §60.633(c)). Alternative methods of monitoring valves may be elected as specified in either 40 CFR §60.483-1 or §60.483-2 of Subpart VV (40 CFR §60.632(a) & (b) of Subpart KKK).

**Recordkeeping and Reporting Requirements:**

- Compliance with the recordkeeping requirements of this subpart shall be met by complying with 40 CFR §60.486 of Subpart VV and as specified in 40 CFR §60.633 and §60.635 of Subpart KKK (40 CFR §60.632 (e) of Subpart KKK).
- Compliance with the reporting requirements of this subpart shall be met by complying with 40 CFR §60.487 of Subpart VV and as specified in 40 CFR §60.633 and §60.636 of Subpart KKK (40 CFR §60.632 (e) of Subpart KKK).
  - A Leak Detection and Repair (LDAR) summary report shall be submitted to the Department. The report shall be submitted semi-annually on calendar basis within 30 days of the end of the reporting period.



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## **FACILITY-WIDE EMISSIONS**

### **National Emission Standards for Hazardous Air Pollutants (NESHAP)**

#### **Applicability:**

- 40 CFR 63, Subpart A, “*General Provisions*”, would be subject to the Chatom Plant provided that the facility is subject to one of the applicable subparts found under this subpart.

#### **Applicability:**

- 40 CFR 63 Subpart HH, “*National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities*”, this subpart would apply to facilities that are a major source or area source of HAPs (40 CFR §63.760(a)(1)) and either process, upgrade, or store hydrocarbon liquids prior to the point of custody transfer (40 CFR §63.760(a)(2)) or process, upgrade, or store natural gas prior to the point at which natural gas enters the natural gas transmission and storage source category or is delivered to a final end user (40 CFR §63.760(a)(3)).

A major source of HAPs under this subpart would require a potential to emit 10 TPY of one HAP or 25 TPY of a combination of HAPs (40 CFR §63.2). The Chatom Plant was designated as a major source of HAPs, with respect to this regulation, when the initial Title V permit was issued on January 23, 2001. However, the facility performed emission testing in June 2001 to demonstrate that the HAPs emission from this facility would be below the major source threshold levels. The major source requirements were removed and a modified permit was issued on April 2, 2004.

The Chatom Plant would be classified as an area source of HAPs. On January 3, 2007, the area source requirements under this subpart were promulgated. An affected source at an area source includes each tri-ethylene glycol (TEG) dehydration unit located at a facility meeting the applicability of this subpart. The dehydration unit located at the Chatom Plant would use an ethylene glycol (EG) solution to remove water from the gas instead of TEG; therefore, the facility would not have an affected source and would not be subject to the applicable requirements of this subpart.

#### **EMISSIONS:**

Facility wide potential emissions for the Chatom Plant are given below.

Potential Facility Wide Emissions from Chatom Plant (TPY)						
	PM <sub>2.5</sub> /PM <sub>10</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	Total HAPs
POTENTIAL EMISSIONS	7.9	5,040	518	2,256	99	23.38

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## PROCESS HEATER & BOILER EMISSIONS

Emission Point	Description	Pollutant	Emission Limit	Regulations
(10184287) 40.2 MMBtu/Hour, Natural Gas-Fired, Utility Boiler		SO <sub>2</sub>	0.22 Lbs/MMBtu of heat input	Rule 335-3-14-.04 (Anti-PSD)
		NO <sub>x</sub>	NONE	
		VOC	NONE	
		CO	NONE	
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	
(10184282) 20.8 MMBTU/Hour, Natural Gas-Fired, Process Heater		SO <sub>2</sub>	4 Lbs/MMBTU of heat input	Rule 335-3-5-.01(1)(b)
		NO <sub>x</sub>	NONE	
		VOC	NONE	
		CO	NONE	
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	
STABILIZER 16.5 MMBTU/Hour, Natural Gas-Fired, Stabilizer Reboiler		SO <sub>2</sub>	4 Lbs/MMBTU of heat input	Rule 335-3-5-.01(1)(b)
		NO <sub>x</sub>	NONE	
		VOC	NONE	
		CO	NONE	
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	

The following sections discuss the process heaters and boilers applicability to state and federal regulations:

### STATE REGULATIONS

#### Applicability:

- ADEM Admin. Code R. 335-3-4-.01, “*Visible Emissions*” for Control of Particulate Emissions would be applicable to stationary sources. The boilers and heaters would each be subject to the requirements of this regulation.

#### Emission Standards:

- The boilers and heaters would be required to meet the 20% and 40% opacity requirement as specified in ADEM Admin. Code R. 335-3-4-.01(1) (a) and (b).

## **PROCESS HEATER & BOILER EMISSIONS**

### **Compliance and Performance Test Methods and Procedures:**

- Provided that visible emissions in excess of the opacity standards are observed from the boilers and heaters, a visible emissions observation (VEO) shall be conducted using the methods specified in EPA Method 9 or Method 22.

### **Emission Monitoring:**

- These units would burn natural gas as their fuel source. The expected particulate emissions from burning natural gas should be negligible; therefore, no daily opacity monitoring would be required for these units. However, if visible emissions are observed from these units in excess of the opacity standards, a VEO would be required.

### **Recordkeeping and Reporting Requirements:**

- A record of each visible emissions observation conducted when necessary.

### **Applicability:**

- ADEM Admin. Code R. 335-3-4-.03(2), "*Fuel Burning Equipment*" for Control of Particulate Emissions would be applicable to stationary sources. This regulation would apply to fuel burning equipment located in a Class II County. Washington County would be considered a Class II County under this regulation; therefore, the boilers and heaters would be subject to the applicable requirements of this regulation.

### **Emission Standards:**

- Particulate matter (PM) emissions from the boilers and heaters shall not exceed the allowable as determined by the following equation:

$$E = [3.109] * [H^{-0.589}]$$

where, E= Emissions (lb/MMBtu) and H= Heat Input (MMBtu/hr)

### **Compliance and Performance Test Methods and Procedures:**

- If testing is required by the Department, particulate matter (PM) emission shall be determined in accordance with Method 5 of 40 CFR 60, Appendix A.

## **PROCESS HEATER & BOILER EMISSIONS**

### **Emission Monitoring:**

- Based on the permit application the potential emissions from the boilers and heaters would not be expected to exceed the allowable PM emissions; therefore, no PM monitoring would be required.

### **Recordkeeping and Reporting Requirements:**

- No recordkeeping or reporting would be required for the boilers and heaters under this regulation.

### **Applicability:**

- ADEM Admin. Code R. 335-3-5-.01(1)(b), "*Fuel Combustion*", limits SO<sub>2</sub> emissions from fuel burning equipment in Category II counties. The process heater, utility boiler, and stabilizer reboiler would all be subject to the requirements of this regulation.

### **Emission Standards:**

- SO<sub>2</sub> emissions from fuel burning equipment in Category II counties would be limited to 4.0 pounds per million BTU of heat input (lb/MMBtu of heat input). This SO<sub>2</sub> emission allowable would be applicable to the 20.8 MMBtu/hr process heater and the 16.5 MMBtu/hr stabilizer reboiler. The SO<sub>2</sub> allowable for the 40.2 MMBtu/hr utility boiler would be limited to 0.22 lb/MMBtu of heat input in order to prevent a exceedence of the PSD threshold. The allowable for the 40.2 MMBtu/hr utility boiler would be further discussed in the PSD section.

### **Compliance and Performance Test Methods and Procedures:**

- To demonstrate compliance with the SO<sub>2</sub> emission limits, the facility would be required to test the fuel gas of the boilers and heaters for its heat content and hydrogen sulfide concentration no less than once each six months.

### **Emission Monitoring:**

- SO<sub>2</sub> monitoring for the boilers and heaters under this regulation shall be in the form of maintaining records of the SO<sub>2</sub> emissions.

### **Recordkeeping and Reporting Requirements:**

- A monthly record of the deviations, maintenance, operating hours (Hours/Month), fuel heat content (Btu/scf), sulfur content (H<sub>2</sub>S mol %), fuel gas consumption (in units of Mscf/day and Mscf/Month), and SO<sub>2</sub> emissions (Lbs SO<sub>2</sub>/MMBtu) would be maintained to demonstrate compliance with the emission standards for the boilers and heaters.

The allowable SO<sub>2</sub> emissions shall be determined using the following equation:

## **PROCESS HEATER & BOILER EMISSIONS**

$$\text{Lbs SO}_2/\text{MMBTU} = \frac{[\text{Fuel H}_2\text{S (ppmv)}] \times [0.1684]}{[\text{Fuel Heat Content (BTU/Scf)}]}$$

where 0.1684 would be the conversion factor determined as follows:  $[1 \text{ lb-mol}/380 \text{ scf}] \times [34 \text{ lbH}_2\text{S}/\text{lb-mol}] \times [64 \text{ lb SO}_2/34 \text{ lb H}_2\text{S}]$

### **Applicability:**

- ADEM Admin. Code R. 335-3-14-.04 "*Prevention of Significant Deterioration (PSD) Permitting*". As stated previously in the facility-wide emission section, the Chatom Plant would be a grandfathered source with respect to PSD regulations. As long as each new project at an existing major stationary source does not exceed the significant emission rates found in 335-3-14-.04(2)(w), the facility's status as a grandfathered source under PSD regulations would not change.

On December 17, 2002, the facility was issued a construction permit to replace the originally permitted 27.4 million British thermal units per hour (MMBtu/hr) utility boiler with the 40.2 MMBtu/hr utility boiler. As previously stated, the allowable for SO<sub>2</sub> emissions from fuel burning equipment in a Category II county would be limited to 4.0 lb/MMBtu. However, if the facility would have been allowed this emission limit for this unit, the emissions from this project would have exceeded the allowable significant emission rate for SO<sub>2</sub>. In order to ensure that the significant emission rate of 40 ton per year of SO<sub>2</sub> was not exceeded, this unit was given a limit of 0.22 Lb/MMBtu for SO<sub>2</sub> emissions.

### **Applicability:**

- ADEM Admin. Code R. 335-3-16-.03, "*Major Source Operating Permits*". The Chatom Plant has been deemed a major source of criteria pollutants and an area source for HAP emissions. The heaters and boilers located at this facility would be subject to the requirements of this regulation.

## **FEDERAL REGULATIONS**

### **New Source Performance Standards (NSPS)**

#### **Applicability:**

- 40 CFR 60 Subpart A, "*General Provisions*" would be subject to the heaters and boilers provided that these units would be subject to one of the applicable subparts found under this subpart.

## **PROCESS HEATER & BOILER EMISSIONS**

### **Applicability:**

- 40 CFR 60 Subpart D, “*Standards of Performance for Fossil-Fuel Fired Steam Generators for which Construction is Commenced after August 17, 1971*”, would not be applicable to the any of the heaters and boilers located at the Chatom Plant because each units’ heat input rate would not be greater than 250 MMBtu/hr (40 CFR §60.40(a)(1)).

### **Applicability:**

- 40 CFR 60 Subpart D<sub>c</sub>, “*Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*” would be applicable to the 40.2 MMBtu/hr utility boiler. Units which were constructed, modified, or reconstructed after June 9, 1989 with a maximum design heat input  $\geq$  10 MMBtu/hr but less than 100 MMBtu/hr would be subject to this regulation. The utility boiler was constructed on October 4, 2002. The other heaters and boilers were constructed prior to June 9, 1989. There would not be any applicable SO<sub>2</sub> or PM standards for the utility boiler because this unit would only combust natural gas as its fuel source.

This subpart would require that the facility maintain a record of the fuel combusted in the utility boiler once each calendar day (40 CFR §60.48c(g)(2)), maintain a record of the fuel usage for a period of two years (40 CFR §60.48c(i)), and submit a semi-annual report of these records (40 CFR §60.48c(j)). However, in a letter dated May 27, 2003, EPA allowed the facility to use an alternative recordkeeping and reporting plan for the utility boiler since natural gas or low sulfur fuel would be used. The facility would now be required to maintain a monthly record of the fuel combusted in the utility boiler, maintain the required records for a period of five years instead of two, and submit an annual report instead of a semi- annual report.

## **National Emission Standards for Hazardous Air Pollutants (NESHAP)**

### **Applicability:**

- 40 CFR 63, Subpart A, “*General Provisions*”, would be subject to the heaters and boilers provided that these units would be subject to one of the applicable subparts found under this subpart.

### **Applicability:**

- 40 CFR 63 Subpart DDDDD, “*National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters*”. The heaters and boilers at the Chatom Plant would not be subject to the requirements of this subpart because the Chatom Plant would not be classified as a major source of HAP emissions.

## **PROCESS HEATER & BOILER EMISSIONS**

Also, this regulation was vacated by EPA on June 8, 2007.

### **Applicability:**

- 40 CFR 64, "*Compliance Assurance Monitoring (CAM)*". The boilers and heaters would not be subject to the requirements of this regulation because they would not meet all of the following criteria: have an emission limit or standard, use a control device to achieve compliance with the emissions limit or standard, and have pre-controlled emissions from a regulated air pollutants that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (40 CFR §64.2(a)). Each boiler and heater would have an emission limit in place for SO<sub>2</sub> emissions and the uncontrolled emissions from the 40.2 MMBtu/hr utility boiler would be expected to exceed the 100 TPY major source threshold for criteria pollutants; however, neither unit would be equipped with a control device. Therefore, the boilers and heaters would not be subject to the requirements of this regulation.

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### ENGINE EMISSIONS

The Chatom Gas Plant is currently permitted for the following engines:

Emission Point	Description	Pollutant	Emission Limit	Regulations
<b>Sources:</b>				
(10187136) 750 BHP Waukesha, L7042 GU Inlet Compressor Engine No. 1 (East) Natural Gas-Fired, Four Stroke Rich Burn ICE, w/Catalytic Converter		NO <sub>x</sub>	2.48 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		VOC	1.65 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		CO	NONE	
		SO <sub>2</sub>	NONE	
(10184350) 750 BHP Waukesha, L7042 GU Inlet Compressor Engine No. 2 (Middle) Natural Gas-Fired, Four Stroke Rich Burn ICE, w/Catalytic Converter		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76 % or more	Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(10)
(10187132) 750 BHP Waukesha, L7042 GU Inlet Compressor Engine No. 3 (West) Natural Gas-Fired, Four Stroke Rich Burn ICE, w/Catalytic Converter		NO <sub>x</sub>	2.48 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		VOC	NONE	
		CO	NONE	
		SO <sub>2</sub>	NONE	
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76 % or more	Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(10)
(10222555) 580 BHP Waukesha, L7042 GU Refrigeration Compressor Engine No. 1, Natural Gas-Fired, Four Stroke Rich Burn ICE		NO <sub>x</sub>	NONE	
		VOC	NONE	
		CO	NONE	
		SO <sub>2</sub>	NONE	
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76 % or more	Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(10)
(10184310) 580 BHP Waukesha, L7042 GU Refrigeration Compressor Engine No. 2, Natural Gas-Fired, Four Stroke Rich Burn ICE		NO <sub>x</sub>	NONE	
		VOC	NONE	
		CO	NONE	
		SO <sub>2</sub>	NONE	
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76 % or more	Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(10)



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**ENGINE EMISSIONS**

<b>Emission Point</b>	<b>Description</b>	<b>Pollutant</b>	<b>Emission Limit</b>	<b>Regulations</b>
(11059224A) 145 BHP Caterpillar G3306NA Injection Compressor Engine No. 1, Natural Gas-Fired, Four Stroke Rich Burn ICE		NO <sub>x</sub> VOC CO SO <sub>2</sub>	NONE NONE NONE NONE	
(11059224B) 145 BHP Caterpillar G3306NA Injection Compressor Engine No. 2, Natural Gas-Fired, Four Stroke Rich Burn ICE		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practices	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
(10184350) 458 BHP Waukesha L5108 Re-compressor Engine No. 1, Natural Gas Fired, Four Stroke Rich Burn ICE		NO <sub>x</sub> VOC CO SO <sub>2</sub>	NONE NONE NONE NONE	
(10184351) 458 BHP Waukesha L5108 Re-compressor Engine No. 2, Natural Gas Fired, Four Stroke Rich Burn ICE		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practices	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
(10184133) 375 HP Waukesha L3521 Electric Generator Engine No. 1, Natural Gas Fired, Four Stroke Rich Burn ICE		NO <sub>x</sub> VOC CO SO <sub>2</sub>	NONE NONE NONE NONE	
(10184119) 375 HP Waukesha L3521 Electric Generator Engine No. 2, Natural Gas Fired, Four Stroke Rich Burn ICE		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practices	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
(10184134) 375 HP Waukesha L3521 Electric Generator Engine No. 3, Natural Gas Fired, Four Stroke Rich Burn ICE				
(10184135) 375 HP Waukesha L3521 Electric Generator Engine No. 4, Natural Gas Fired, Four Stroke Rich Burn ICE				
(10184144) 375 HP Waukesha L3521 Electric Generator Engine No. 5, Natural Gas Fired, Four Stroke Rich Burn ICE				
(10184131) 375 HP Waukesha L3521 Electric Generator Engine No. 6, Natural Gas Fired, Four Stroke Rich Burn ICE				

## **ENGINE EMISSIONS**

The following sections discuss the engines' applicability to state and federal regulations:

### **STATE REGULATIONS**

#### **Applicability:**

- ADEM Admin. Code R. 335-3-4-.01, "*Visible Emissions*" for Control of Particulate Emissions would be applicable to stationary sources. The reciprocating internal combustion engines (RICE) would be subject to the requirements of this regulation.

#### **Emission Standards:**

- The engines would be required to meet the 20% and 40% opacity requirement as specified in ADEM Admin. Code R. 335-3-4-.01(1) (a) and (b).

#### **Compliance and Performance Test Methods and Procedures:**

- Provided that visible emissions in excess of the opacity standards are observed from the engines, a visible emissions observation (VEO) shall be conducted using the methods specified in EPA Method 9 or Method 22.

#### **Emission Monitoring:**

- These units would burn natural gas as their fuel source. The expected particulate emissions from burning natural gas should be negligible; therefore, no daily opacity monitoring would be required for these units. However, if visible emissions are observed from these units in excess of the opacity standards, a VEO would be required.

#### **Recordkeeping and Reporting Requirements:**

- A record of each visible emissions observation conducted when necessary would be maintained.

#### **Applicability:**

- ADEM Admin. Code R. 335-3-14-.04 "*Prevention of Significant Deterioration (PSD) Permitting*". As stated previously in the facility-wide emission section, the Chatom Plant would be a grandfathered source with respect to PSD regulations. As long as each new project at an existing major stationary source does not exceed the significant emission rates found in 335-3-14-.04(2)(w), the facility's status as a grandfathered source under PSD regulations would not change.

On November 28, 1984, the facility was issued a construction permit for the installation of two

## **ENGINE EMISSIONS**

(2) 750 HP inlet compressor engines (No. 1 and No. 2). The uncontrolled emissions from this project were expected to exceed the significant emission rates for nitrogen oxide (NO<sub>x</sub>) and volatile organic compounds (VOC); therefore, the facility was required to take permit limits to maintain their status as a grandfathered source under this regulation. In order to meet the 2.48 lb/hr NO<sub>x</sub> and 1.65 lb/hr VOC permit limits, the facility was required to maintain catalytic converters on each of the units.

On July 18, 2002, the facility was issued a construction permit to convert one of its originally installed 580 HP injection engines to a 750 HP engine and use this engine for inlet compression. This unit was designated the 750 HP inlet compressor engine No. 3. This project should have triggered PSD at the time the permit was issued because the uncontrolled NO<sub>x</sub> emissions exceeded the significant emissions rate for this pollutant. During the April 2, 2004 permit modification, a 2.48 lb/hr NO<sub>x</sub> limit was placed on the No. 3 engine to prevent this unit from being subject to the requirements of PSD.

On February 1, 2006, a construction permit was issued for two (2) 145 HP, 4SRB, Caterpillar G3306 injection compressor engines. The addition of these units to the facility caused an increase in NO<sub>x</sub> emission above the significant emission rate. However, the facility had previously replaced or removed units from service which allowed them to perform a netting analysis to reduce NO<sub>x</sub> emission below the significant emissions rates. Therefore, this project did not trigger a PSD review.

Based on the above projects, the facility has maintained its status as a grandfathered source.

### **Applicability:**

- ADEM Admin. Code R. 335-3-16-.03, "*Major Source Operating Permits*". The Chatom Plant has been deemed a major source of criteria pollutants and an area source for HAP emissions. The engines located at this facility would be subject to the requirements of this regulation.

## **FEDERAL REGULATIONS**

### **National Emission Standards for Hazardous Air Pollutants (NESHAP)**

#### **Applicability:**

- 40 CFR 63, Subpart A, "*General Provisions*", would be subject to the engines provided that these units would be subject to one of the applicable subparts found under this subpart.

#### **Applicability:**

- 40 CFR 63 Subpart ZZZZ, "*National Emission Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines (RICE)*" (aka the RICE MACT). This regulation would be applicable to any internal combustion engine that would be located at a major source of HAPs emissions or an area source of HAPs emissions. A major source of HAPs would require 10 TPY or more of one HAP or 25 TPY or more of a combination of HAPs (40 CFR §63.6585 (b)). An area source of HAPs, under Subpart ZZZZ, would be defined as a

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source that is not a major source (40 CFR §63.6585(c)). The Chatom Gas Plant would be classified as an area source of HAPs.

A stationary RICE that commenced construction or reconstruction before June 12, 2006 would be considered an existing RICE (40 CFR §63.6590(1)(iii)). An existing stationary spark ignition RICE located at an area source of HAPs would be required to comply with the applicable emission limitations or operating limitations found in this subpart by no later than October 19, 2013 (40 CFR §63.6595(a)(1)). The Chatom Plant would be equipped with the following existing four stroke rich burn (4SRB) stationary RICE with a maximum engine rating less than or equal to 500 HP: two (2) 458 HP Waukesha Recompressor Engines, six (6) 375 HP Waukesha Electric Generator Engines, and two (2) 145 HP Caterpillar Injection Compressor Engines. The plant would also be equipped with the following existing 4SRB stationary RICE with a maximum engine rating greater than 500 HP: three (3) 750 HP Inlet Compressor Engine and two (2) 580 HP Waukesha Refrigeration Compressor Engines.

**Emission Standards:**

**Existing 4SRB SI stationary RICE rating  $\leq$  500 HP at an Area Source of HAP**

- If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the applicable requirements found in Table 2d and the operating limitation found in Table 2b of this subpart that apply to you (40 CFR §63.6603 (a)). There are no operating limitations found in Table 2b for existing 4SRB stationary RICEs located at an area source of HAPs. The requirements found in Table 2d (No. 9) would be applicable to the existing 4SRB SI stationary RICE with an engine rating  $\leq$  500 HP. The following management practices must be complied with for these engines, except during periods of startup:

Table 2d Subpart ZZZZ	Work, Operations, or Management Practice Requirements
<b>9. Non-emergency, non-black start 4SRB existing stationary RICE located at an area source of HAPs with an engine rating <math>\leq</math> 500 HP</b>  458 HP Re-compressor Engine No. 1 and No. 2  375 HP Electric Generator Engine No. 1, No. 2, No. 3, No. 4, No. 5 and No. 6  145 HP Injection Compressor Engine No. 1 and No. 2	 a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(j) in order to extend the specified oil change requirement,  b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first; <b>and</b>  c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

**Existing 4SRB SI stationary RICE rating  $>$  500 HP at an Area Source of HAP**

The requirements found in Table 2d (No. 10) would be applicable to the existing 4SRB SI stationary RICE with an engine rating  $>$  500 HP. The following requirements must be met for these engines, except during periods of startup:

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<b>Table 2d Subpart ZZZZ</b>	<b><u>Requirements</u></b>
<b>10. Non-emergency, non-black start 4SRB existing stationary RICE located at an area source of HAPs with an engine rating &gt; 500 HP</b>  580 HP Refrigeration Compressor Engine No. 1 and No. 2  750 HP Inlet Compressor Engine No. 1, No. 2, No. 3 each equipped with a catalytic converters	a. Limit the concentration of formaldehyde in the stationary RICE exhaust to 2.7 ppmvd or less at 15 percent O <sub>2</sub> ; <b>or</b>  b. Reduce formaldehyde emissions by 76 percent or more.

### **Compliance and Performance Test Methods and Procedures:**

#### **Existing 4SRB SI stationary RICE rating $\leq$ 500 HP at an Area Source of HAP**

- Since there are no numerical emissions or operating limitation for 4SRB engines with a site rating of  $\leq$  500 HP, a performance test as specified in Table 4 of this subpart and an initial compliance determination as specified in Table 5 would not be required for these units (40 CFR §63.6630).

#### **Existing 4SRB SI stationary RICE rating > 500 HP at an Area Source of HAP**

- An existing stationary RICE located at an area source of HAP emissions would be required to conduct an initial performance test or other initial compliance demonstration (where applicable) according to Tables 4 and 5 of this subpart. An existing 4SRB SI stationary RICE with a rating > 500 HP must comply with the following requirements since these units have numerical requirements that must be met:
  - The general compliance requirements requires that at all times the emission limitations and operating limitation be complied with (40 CFR §63.6605(a)). At all times, an affected source must be operated and maintained, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions (40 CFR §63.6605(b)).
  - An initial performance test or other initial compliance demonstration for an existing 4SRB stationary RICE with a site rating > 500 HP located at an area source shall meet the following requirements (40 CFR §63.6612):
    1. Except for a stationary RICE that has previously had a performance test conducted that meets all the requirements specified in §63.6612(b), an initial performance test shall be conducted within 180 days after the October 19, 2013 compliance date for an existing engine located at an area source of HAPs and according to the provisions in §63.7(a)(2) (40 CFR §63.6612(a) and (b)).
    2. Reduce formaldehyde emissions as specified in Table 4 (2)(a)(i) through (iv) of this subpart
    3. Conduct performance tests and other procedures using methods specified in §63.6620 of this subpart

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- Subsequent performance test would be performed as specified in Table 3 (No. 4) for existing non-emergency, non-black start 4SRB stationary RICE located at an area source of HAP emission with a engine rating >500 HP that are operated more than 24 hours per calendar year and that are not limited use stationary RICE (40 CFR §63.6615). To comply with the requirement to limit or reduce formaldehyde emissions, the facility must conduct subsequent performance tests every 8,760 hours or 3 years, whichever comes first.
- Initial compliance with the emission limitations and operating limitations shall be demonstrated by meeting the requirements specified in §63.6630 of this subpart. Initial compliance with emission limitation and operating requirements found in Table 5 of this subpart shall be met for an existing stationary RICE located at an area source of HAP emissions (40 CFR §63.6612). Existing non-emergency 4SRB stationary RICE with a engine rating greater than 500 HP located at an area source of HAPs would be required to meet the requirements found in Table 5 (No. 4) of this subpart if using non-selective catalytic reduction (NSCR) or Table 5 (No. 5) of this subpart if not using an NSCR as follows:

<b>Table 5 Subpart ZZZZ-Initial Compliance</b>	<b>Comply with Requirement to...</b>	<b>You have demonstrated initial compliance if...</b>
<b>4. Existing 4SRB SI stationary RICE rating &gt; 500 HP</b>  750 HP Inlet Compressor Engine No. 1, No. 2, and No. 3	a. Reduce formaldehyde emissions and <b>using</b> NSCR.	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction; <b>and</b>  ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); <b>and</b>  iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
<b>5. Existing 4SRB SI stationary RICE rating &gt; 500 HP</b>  580 HP Refrigeration Compressor Engine No. 1, No. 2, and No. 3	a. Reduce formaldehyde emissions and <b>not using</b> NSCR.	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction; <b>and</b>  ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); <b>and</b>  iii. You have recorded the approved operating parameters (if any) during the initial performance test.

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- Continuous compliance with the emissions and operating limitations shall be demonstrated as follows:
  1. Meeting the monitoring and data collection requirements as specified in §63.6635 of this subpart.
  2. Meeting the following requirements as specified in §63.6640 of this subpart:
    - a. Comply with the applicable requirements for emission limitations, operating limitations, work practices, and management practices found in Table 6 (40 CFR §63.6640(a)).

<b>Table 6 Subpart ZZZZ-Continuous Compliance</b>	<b>Comply with Requirement to...</b>	<b>You must demonstrate continuous compliance by...</b>
<b>9. Existing non-emergency 4SRB stationary RICE with a site rating <math>\leq</math> 500 HP at an area source of HAPs</b>  458 HP Re-compressor Engine No. 1 and No. 2  375 HP Electric Generator Engine No.1, No. 2, No. 3, No. 4, No. 5, and No. 6  145 HP Injection Compressor Engine No. 1 and No. 2	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or  ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
<b>10. Existing 4SRB stationary RICE with a site rating &gt; 500 HP located at an area source of HAP that operates more than 24 hr per calendar year and is not a limited use stationary RICE</b>  750 HP Inlet Compressor Engine No. 1, No. 2, and No. 3	a. Reduce CO or formaldehyde emissions, or limit the concentration of formaldehyde or CO in the stationary RICE exhaust, and <b>using</b> oxidation catalyst or NSCR.	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and  ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and  iii. Reducing these data to 4-hour rolling averages; and  iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and  v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.

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Table 6 Subpart ZZZZ Continuous Compliance	Comply with Requirement to...	You must demonstrate continuous compliance by...
<b>11. Existing 4SLB and 4SRB stationary RICE &gt;500 HP located at an area source of HAP that operate more than 24 hours per calendar year and are not limited use stationary RICE</b>  580 HP Refrigeration Compressor Engine No. 1, No. 2, and No. 3	a. Reduce CO or formaldehyde emissions, or limit the concentration of formaldehyde or CO in the stationary RICE exhaust, and <b>not using</b> oxidation catalyst or NSCR.	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and  ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and  iii. Reducing these data to 4-hour rolling averages; and  iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

- b. Report instances in which the requirements specified in Table 2d (No. 9) and Table 2d (No. 10) were not met. These instances should be reported as deviations according to the requirements of §63.6650 (40 CFR §63.6640(b)).
- c. Operate the engine in accordance with the startup, shutdown, and malfunction plan during periods of startup, shutdown and malfunction (40 CFR §63.6640(c))
- d. Meet the general provisions to this subpart as specified in Table 8 (40 CFR §63.6640(a))

### **Emission Monitoring:**

#### **Existing 4SRB SI stationary RICE rating $\leq$ 500 HP at an Area Source of HAP**

- If you own or operate an existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instruction or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution practice for minimizing emissions (40 CFR §63.6625(e)(8)).
- If you operate a new, reconstructed, or existing stationary engine, the engine's time spent at idle during startup shall be minimized and the engine's startup time shall be minimized to a



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period needed for appropriate and safe loading of the engine as specified in §63.6625(h).

**Existing 4SRB SI stationary RICE rating > 500 HP at an Area Source of HAP**

- Since the facility would be required to install a continuous parameter monitoring system (CPMS) on the existing 4SRB SI stationary RICE with an engine rating > 500 HP as required in Table 5 (No. 4) and (No. 5) of this subpart, the CPMS shall be installed, operated and maintained as specified in §63.6625(b) of this subpart.
- If you operate a new, reconstructed, or existing stationary engine, the engine's time spent at idle during startup shall be minimized and the engine's startup time shall be minimized to a period needed for appropriate and safe loading of the engine as specified in §63.6625(h).
- If you have an operating limitation that requires the use of a temperature measurement device, the engines must meet the requirements specified in §63.6625(k).

**Recordkeeping and Reporting Requirements:**

Notifications

**Existing 4SRB SI stationary RICE rating ≤ 500 HP at an Area Source of HAP**

- Since there are no numerical emissions standards for an existing 4SRB stationary SI RICE with an engine rating less than or equal to 500 HP located at an area source of HAPs, an initial notification would not be required for these units (40 CFR §63.6645(a)(5)).

**Existing 4SRB SI stationary RICE rating > 500 HP at an Area Source of HAP**

- A notification would be required for an existing 4SRB SI stationary RICE with an engine rating > 500 HP located at an area source of HAPs (40 CFR §63.6645(a)(2)). The notification would be required to meet the applicable requirements found in §63.6645(a).
- A Notification of Intent to conduct a performance test should be submitted to the Department at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1) (40 CFR §63.6645(g)).
- Since the facility would be required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 of this subpart, a Notification of Compliance Status should be submitted to the Department according to §63.9(h)(2)(ii) (40 CFR §63.6645(h)). The Notification of Compliance Status, including the performance test results, should be submitted to the Department within 60 days of completion of the performance test according to §63.9(h)(2)(ii) (40 CFR §63.6645(h)(2)).

Reports

**Existing 4SRB SI stationary RICE rating ≤ 500 HP at an Area Source of HAP**

- There are no reporting requirements found in Table 7 of this subpart for an existing 4SRB stationary RICE located at an area source with a engine rating of less than or equal to 500 HP (40 CFR §63.6650).

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**Existing 4SRB SI stationary RICE rating > 500 HP at an Area Source of HAP**

- An existing non-emergency non-black start 4SRB stationary RICE with an engine rating > 500 HP located at an area source of HAP and operated more than 24 hours per calendar year would have to comply with the reporting requirements found in Table 7 (No.1) of this subpart and according to the requirements of §63.6650 (b)(1) through (9) (40 CFR §63.6650 (a) and (b)). A Compliance Report containing the following information would be required for these units:
  - Information specified in §63.6650(c)(1) through (6)
  - If there are no deviations from any emission limitations or operating limitations, a statement indicating there were no deviations during the reporting period shall be included. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement indicating no such periods occurred during this reporting period shall be included. The report shall be submitted semi-annually according to the requirements of §63.6650(b)(1)-(5) for engines that are not limited use stationary RICE subject to a numerical emission limitations.
  - If there are deviations from an emission limitation or operating limitation during the reporting period, the information specified in §63.6650(d) or (e) shall be included in the compliance report. If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e) shall be included. The report shall be submitted semi-annually according to the requirements of §63.6650(b).
  - If there is a malfunction during the reporting period, the information in §63.6650(c)(4) shall be included. The report shall be submitted semi-annually.
  - Semi-annual compliance reports shall be submitted on a calendar basis according to the following reporting schedule §63.6650(b):

<u>Reporting Period</u>	<u>Submittal Date</u>
January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>
July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>

**Records**

**Existing 4SRB SI stationary RICE rating ≤ 500 HP at an Area Source of HAP**

- Records of maintenance conducted on an existing stationary RICE located at an area source of HAP emissions that would be subject to the management practices as specified in Table 2d of this subpart shall be maintained. The records must demonstrate that the unit and its after-treatment control device (if any) would be operated and maintained according to its

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**ENGINE EMISSIONS**

maintenance plan (40 CFR §63.6655(e)(3)).

**Existing 4SRB SI stationary RICE rating > 500 HP at an Area Source of HAP**

- The following records must be kept for existing 4SRB SI stationary RICE with an engine rating > 500 HP located at an area source of HAP:
  - Records specified in §63.6655(a) to demonstrate compliance with emission and operating limitations
  - Records for each CEMS or CPMS as specified in §63.6655(b)(1) through (3).
  - Records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies.

Records shall be maintained as follows for all engines:

- Each record shall be kept in a form suitable and readily available for expeditious review according to §63.10(b)(1) (40 CFR §63.6660(a))
- Each record shall be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record (40 CFR §63.6660(b)).
- Each record shall be readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record (40 CFR §63.6660(c)).

**New Source Performance Standards (NSPS)**

**Applicability:**

- 40 CFR 60 Subpart A, “General Provisions” would be subject to the engines provided that these units would be subject to one of the applicable subparts found under this subpart.

**Applicability:**

- 40 CFR 60 Subpart JJJJ, “Standards of Performance for Stationary Spark Ignition Internal Combustion Engines”. This regulation would not be applicable any of the currently permitted engines since they all have been constructed prior to the June 12, 2006 compliance date for this subpart.

## **ENGINE EMISSIONS**

### **Compliance Assurance Monitoring**

#### **Applicability:**

- 40 CFR 64, "*Compliance Assurance Monitoring (CAM)*" would not be applicable to the engines because the engines would not meet all of the following criteria: be subject to an emission limit or standard, use a control device to achieve compliance with the emissions limit or standard, and have pre-controlled emissions from a regulated air pollutants that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (40 CFR §64.2(a)).

The inlet compressor engines have PSD emission limits for NO<sub>x</sub> and/or VOC emissions and they use a control device to comply with these limits; however, the uncontrolled potential emission from these criteria pollutants would not be expected to exceed 100 TPY for each of these pollutants. The refrigeration compressor engines and the inlet compressor engines each have formaldehyde emission limits in place to comply with 40 CFR 63, Subpart ZZZZ; however, the refrigeration compressor engines would not be equipped with control devices and the uncontrolled formaldehyde emissions are not expected to exceed the 10 TPY threshold for a single HAP or the 25 TPY threshold for a combination of HAPs for either types of engines. Since the engines do not meet all of the criteria for applicability under this subpart, they would not be subject to the requirements of this subpart.

Chatom Gas Production, Treating, and Processing Facility  
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## SULFUR RECOVERY UNIT/THERMAL OXIDIZER EMISSIONS

The thermal oxidizer would be used to control SO<sub>2</sub> emission by combusting tail gas stream from the sulfur recovery unit (SRU). Applicable regulations to the thermal oxidizer are listed below.

Emission Point	Description	Pollutant	Emission Limit	Regulations
<b>Individual Sources:</b>				
Sulfur Recovery Unit				
	Available Sulfur for Category II Counties	SO <sub>2</sub>	Depends on available sulfur	Rule 335-3-5-.03(3)
	Available sulfur <= 10 LTons/Day Or	SO <sub>2</sub>	Unlimited	
	Available sulfur > 10 LTons/Day & <= 50 LTons/Day Or	SO <sub>2</sub>	560 Lbs SO <sub>2</sub> /Hour	
	Available sulfur > 50 LTons/Day & <= 100 LTons/Day Or	SO <sub>2</sub>	0.10 Lbs SO <sub>2</sub> /Lb Sulfur	
	Available sulfur > 100 LTons/Day	SO <sub>2</sub>	0.08 Lbs SO <sub>2</sub> /Lb Sulfur	
	Allowable SO <sub>2</sub> emission increases relative to the H <sub>2</sub> S content of acid gas:	SO <sub>2</sub>	Depends on the mole percent of H <sub>2</sub> S in Dry Acid Gas	Rule 335-3-5-.03(3)(a)
	H <sub>2</sub> S% in acid gas > 50% & <= 60% Or	SO <sub>2</sub>	0.02 Lbs SO <sub>2</sub> /Lb Sulfur	
	H <sub>2</sub> S% in acid gas > 40% & <= 50% Or	SO <sub>2</sub>	0.04 Lbs SO <sub>2</sub> /Lb Sulfur	
	H <sub>2</sub> S% in acid gas > 30% & <= 40% Or	SO <sub>2</sub>	0.06 Lbs SO <sub>2</sub> /Lb Sulfur	
	H <sub>2</sub> S% in acid gas > 20% & <= 30%	SO <sub>2</sub>	0.10 Lbs SO <sub>2</sub> /Lb Sulfur	
(10184323) Thermal oxidizer			No more than one 6 min avg. > 20% AND	Rule 335-3-4-.01(1)(a)
		Opacity	No 6 min avg. > 40%	Rule 335-3-4-.01(1)(b)
		H <sub>2</sub> S	Burn gas with 0.10 grains of H <sub>2</sub> S/scf	Rule 335-3-5-.03(1)
			20 ppbv offsite	Rule 335-3-5-.03(2)

The following sections would discuss the SRU and thermal oxidizer's applicability to state and federal regulations:

## **SULFUR RECOVERY UNIT/THERMAL OXIDIZER EMISSIONS**

### **STATE REGULATIONS**

#### **Applicability:**

- ADEM Admin. Code R. 335-3-4-.01, "*Visible Emissions*" for Control of Particulate Emissions would be applicable to stationary sources. The thermal oxidizer would be subject to the requirements of this regulation.

#### **Emission Standards:**

- The thermal oxidizer would be required to meet the 20% and 40% opacity requirement as specified in ADEM Admin. Code R. 335-3-4-.01(1) (a) and (b).

#### **Compliance and Performance Test Methods and Procedures:**

- Compliance with the visible emission standards shall be met by conducting a daily visual inspection of the thermal oxidizer for the presence or absence of visible emissions. Provided that visible emissions in excess of the opacity standards are observed during the daily inspections, a visible emission observation (veo) shall be conducted on the thermal oxidizer. Except when the production facility would not be manned or when a process stream would not be sent to the thermal oxidizer, visual inspections of the thermal oxidizer shall be conducted daily.

#### **Emission Monitoring:**

- Opacity monitoring for the thermal oxidizer shall be conducted according to the periodic opacity monitoring specified for this unit. Opacity monitoring shall utilize EPA Test Method 9 or 22 found in 40 CFR Part 60 (ADEM Admin. Code R. 335-3-4-.01(2)).

#### **Recordkeeping and Reporting Requirements:**

- A record of the daily visual inspections and each visible emission observation specifying the date, time, and duration of the visible emissions and any corrective actions taken shall be maintained.

#### **Applicability:**

- ADEM Admin. Code R. 335-3-5-.03(1), "*Petroleum Production*" would apply to the control of sulfur compound emissions from each petroleum production facility that handles gas or refinery gas that contains more than 0.10 grains of hydrogen sulfide (H<sub>2</sub>S) per standard cubic foot (scf) (~160 ppmv). The Chatom Plant would handle sour gas that contains 0.10 grain of H<sub>2</sub>S/scf or more; therefore, the facility would be subject to the applicable

Chatom Gas Production, Treating, and Processing Facility  
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## **SULFUR RECOVERY UNIT/THERMAL OXIDIZER EMISSIONS**

requirements of this regulation. The facility would use the thermal oxidizer and emergency flare to comply with this regulation.

### **Emission Standards:**

- In order to meet the applicability requirements of ADEM Admin. Code R. 335-3-5-.03(1), all process gas containing greater than the 0.10 grains of H<sub>2</sub>S/scf shall be burned to the extent that the ground level concentrations of hydrogen sulfide are less than twenty (20) parts per billion beyond plant property limits, averaged over a thirty (30) minute period (335-3-5-.03(2)). Except when being depressurized and/or emptied, venting to the atmosphere shall not exceed 15 continuous minutes.
- SO<sub>2</sub> emissions from a facility designed to dispose of or process natural gas or refinery gas containing more than 0.10 grains of H<sub>2</sub>S/scf in a Category II County depends on the available sulfur (Ltons/day) being processed (335-3-5-.03(3)). The Chatom Plant would be located in Washington County which would be classified as a Category II County. The maximum available sulfur for the current day Chatom Plant would be 169 Ltons/day. Based on the available sulfur, the SO<sub>2</sub> emission from the Chatom Plant would be limited to 0.08 Lbs per Lbs of sulfur processed plus the acid gas adjustments found in Table 335-3-5-.03(3)(a).

### **Compliance and Performance Test Methods and Procedures:**

- Compliance with the requirement to burn gas containing 0.10 grains of H<sub>2</sub>S/scf would be demonstrated by capturing and routing the acid gas from the amine sweetening unit to the SRU then routing the tail gas from the SRU to the thermal oxidizer. During emergency situations, acid gas from the amine sweetening unit would be burned in the emergency flare when problems are encountered with the sulfur recovery plant or thermal oxidizer. Compliance with this regulation would be demonstrated by sampling and testing each acid gas stream that can be sent to the SRU for its H<sub>2</sub>S content (mol %). The frequency of sampling the acid gas stream that could be sent to the SRU would be modified from weekly to monthly. One of the following methods should be used to analyze the sample: Tutwiler procedures found in §60.648, the chromatographic analysis procedures found in ASTM E-260, the stain tube procedures found in GPA 2377-86, or those provided by the stain tube manufacture.

In order to demonstrate that the sulfur recovery efficiency would be met, the facility would be required to perform an annual compliance test to determine SO<sub>2</sub> and total reduced sulfur (TRS) emissions from the sulfur recovery unit. The following methods found in 40 CFR Part 60 Appendix A would be used for testing: Method 1 or 1A, Method 2, 2A, 2B, 2C, 2D, or 2E, Method 3, 3A, 3B, or 3C, Method 4, Method 6, 6A, 6B, or 6C, Method 15, 15A, 16, 16A, or 16B, or 40 CFR §60.644.

## **SULFUR RECOVERY UNIT/THERMAL OXIDIZER EMISSIONS**

- Compliance with the requirement to maintain the ground level concentrations of hydrogen sulfide at less than twenty (20) parts per billion beyond plant property limits averaged over a thirty (30) minute period shall be demonstrated by maintaining the allowable sulfur recovery efficiency or meeting the sulfur dioxide emission rate.

### **Emission Monitoring:**

- Monitoring to demonstrate compliance with the requirement to burn gas with more than 0.10 grains of H<sub>2</sub>S per scf would be met by measuring and recording the inlet feed volume and sulfur content of the process stream being sent to the thermal oxidizer.

### **Recordkeeping and Reporting Requirements:**

- A record of each performance test, shutdown, startup and maintenance records for the SRU, sweetening unit, and thermal oxidizer, three hour rolling average CMS calculations and analysis for SRU, sulfur recovery efficiency and SO<sub>2</sub> emissions rate, thermal oxidizer daily visible inspection results and corrective actions taken, each visible emission observation when required, monthly process gas stream H<sub>2</sub>S content and records of each deviation from the permit terms or conditions for the SRU and thermal oxidizer shall be maintained.
- A Periodic Monitoring Report (PMR) that identifies each incidence of a deviation from a permit term or condition for the SRU/thermal oxidizer, including those that occur during startups and shutdowns should be prepared and submitted to the Department. The PMR report shall be submitted semi-annually on a calendar basis within 30 days of the end of the reporting period.

### **Applicability:**

- ADEM Admin. Code R. 335-3-16-.03, "*Major Source Operating Permits*". The SRU and thermal oxidizer would be located at a facility that would be subject to MSOP regulations; therefore, these units would be subject to this regulation.

### **Applicability:**

- 40 CFR 64, "*Compliance Assurance Monitoring (CAM)*". The thermal oxidizer and SRU would be subject to the requirements of this regulation because they would meet all of the following criteria: have an emission limit or standard, use a control device to achieve compliance with the emission limit or standard, and have pre-controlled emissions from a regulated air pollutants that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (40 CFR §64.2(a)).



## **SULFUR RECOVERY UNIT/THERMAL OXIDIZER EMISSIONS**

The thermal oxidizer would be used as a control device to comply with the work practice requirement to burn process gas containing 0.10 grains of H<sub>2</sub>S/scf. As defined in this subpart, an emission limitation or standard may be expressed in the form of a work practice, process or control parameter or other form of specific design, equipment, operational or operation and maintenance requirement (§64.1). A regulated pollutant under ADEM Admin Code R. 335-3-16-.01(w)(3) would include H<sub>2</sub>S since this pollutant would be subject to a standard promulgated under Section 111 (covering New Source Performance Standards) of the Clean Air Act. The pre-controlled hydrogen sulfide emissions from the thermal oxidizer would be expected to exceed the 100 TPY major source threshold; therefore, this unit would be subject to CAM regulations.

The sulfur recovery unit and thermal oxidizer would be used as a control device to comply with the SO<sub>2</sub> emission allowables for a Category II County. The potential uncontrolled SO<sub>2</sub> emissions from the thermal oxidizer would also be expected to exceed 100 TPY. Therefore, the sulfur recovery unit and the thermal oxidizer would be subject to CAM regulations.

CAM monitoring for the thermal oxidizer would be in the form of maintaining the three hour rolling average thermal oxidizer firebox temperature (aka incinerator stack temperature) at greater than or equal to 1,200 °F. CAM monitoring for the sulfur recovery unit would be in the form of maintaining the SO<sub>2</sub> emission rate or sulfur recovery efficiency as required based on the available sulfur and the H<sub>2</sub>S concentration in the acid gas stream. An annual Relative Accuracy Test Audit (RATA) would also be required to demonstrate that the continuous emission monitoring system (CEMS) on the SRU and thermal oxidizer is functioning properly.

The recordkeeping and reporting requirements of the CAM plan found in the facility's current permit would remain unchanged. The facility would be required to submit an Excess Emissions and CMS Performance Summary Report that identifies each period in which there was a failure to maintain the firebox temperature for the thermal oxidizer above or equal to 1,200 °F (or other approved minimum firebox temperature), there was a failure to maintain the three hour rolling average sulfur recovery at an efficiency within the allowable range, there was a failure to maintain the three hour rolling average sulfur dioxide emissions at a rate that is less than or equal to the SO<sub>2</sub> allowable, and there was a failure of the CEMS to meet the requirements specified in Appendix F of 40 CFR Part 60 while the sulfur removal system remained in operation. The report would be due quarterly on a calendar basis within 30 days of the end of the reporting period.

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### **EMERGENCY FLARE EMISSIONS**

The Chatom Plant would be equipped with two flares. One flare would be designated as the emergency flare and a second, un-permitted flare, would be designated as the sour water flare. The emergency flare would be used during periods of upset and malfunction, particularly when the plant would experience problems with the sulfur recovery unit or the thermal oxidizer. During these events, acid gas would be burned in the emergency flare. The sour water flare was not permitted by the Department. This unit would burn vapors from the sour water storage tanks. There was no justification found in the facility files maintained by the Department that would indicate why the sour water flare was not permitted. The facility assumes that the sour water flare may not have been permitted because the flare may have been identified as an insignificant source since its emissions would be less than 1 ton per year and the HAP emissions would be negligible.

Emission Point	Description	Pollutant	Emission Limit	Regulations
<b>Individual Sources:</b>				
(FLARE No. 1) Facility Emergency Flare		Opacity	No Visible Emissions	§ 60.18(c)(1) §60.482-10(d)
		H <sub>2</sub> S	Burn gas with 0.10 grains of H <sub>2</sub> S/scf	Rule 335-3-5-.03(1)
			20 ppbv offsite	Rule 335-3-5-.03(2)

The following sections discuss the flare's applicability to state and federal regulations:

#### **STATE REGULATIONS**

##### **Applicability:**

- ADEM Admin. Code R. 335-3-4-.01, "*Visible Emissions*" for Control of Particulate Emissions would be applicable to stationary sources. The emergency flare would not be subject to the requirements of this subpart. The emergency flare would be required to meet more stringent federal opacity standards because this unit would be used to comply with 40 CFR 60 Subpart KKK. The emergency flare would be required to have no visible emissions (smokeless flare), except for five minutes in a two hour period.

##### **Applicability:**

- ADEM Admin. Code R. 335-3-5-.03(1), "*Petroleum Production*" would apply to the control of sulfur compound emissions from each petroleum production facility that handles gas or

## **EMERGENCY FLARE EMISSIONS**

refinery gas that contains more than 0.10 grains of hydrogen sulfide ( $H_2S$ ) per standard cubic foot (scf). The emergency flare would be used to demonstrate compliance with this regulation.

### **Emission Standards:**

- In order to meet the applicability requirements of ADEM Admin. Code R. 335-3-5-.03(1), all process gas containing greater than the 0.10 grains of  $H_2S$ /scf shall be burned to the extent that the ground level concentrations of hydrogen sulfide are less than twenty (20) parts per billion beyond plant property limits, averaged over a thirty (30) minute period (335-3-5-.03(2)). Except when being depressurized and/or emptied, venting to the atmosphere shall not exceed 15 continuous minutes.

### **Compliance and Performance Test Methods and Procedures:**

- Compliance with the requirement to burn gas containing 0.10 grains of  $H_2S$ /scf would be demonstrated by capturing and routing vapors from equipment in VOC and in wet gas service and by routing acid gas from the amine sweetening unit to the flare during emergencies. Compliance with this regulation would also be met by sampling and testing each process gas stream that can be sent to the flare for its hydrogen sulfide content ( $H_2S$  mol%) no less than once each four months. The frequency of sampling for the  $H_2S$  concentration in the flare would be modified from monthly to once every four months as requested by the facility. One of the following methods should be used to analyze the sample: Tutwiler procedures found in §60.648, the chromatographic analysis procedures found in ASTM E-260, the stain tube procedures found in GPA 2377-86, or those provided by the stain tube manufacture.
- Compliance with the requirement to maintain the ground level concentrations of hydrogen sulfide at less than twenty (20) parts per billion beyond plant property limits averaged over a thirty (30) minute period shall be demonstrated by maintaining the  $H_2S$  feed rate to the flare at less than or equal to 2,440 lb/hr averaged over a one hour period. This feed rate was established in the March 31, 2008 modeling study conducted on the flare by the company. On May 16, 2008, the Department approved the new feedrate and the permit was Re-opened for Cause. On December 10, 2008, the permit was modified to include the newly established  $H_2S$  feedrate.

### **Emission Monitoring:**

- Monitoring to demonstrate compliance with the requirement to burn gas with more than 0.10 grains of  $H_2S$  per scf shall be met for the flare by monitoring the inlet feed volume and the  $H_2S$  concentration of the gas being sent to the flare.

## **EMERGENCY FLARE EMISSIONS**

### **Recordkeeping and Reporting Requirements:**

- A record of the following shall be maintained: each deviation and corrective actions taken, each visible emission observation conducted on the flare, H<sub>2</sub>S content (mol %) of process stream sent to the flare, gas volume burned in the flare (Mscf/Month), stream H<sub>2</sub>S feed rate (Lbs/Month and Lb/hr), flare H<sub>2</sub>S feed rate (Lbs/Month), flare SO<sub>2</sub> emissions (Lbs/Month), and the number of hours flare operated during the month.
- A Periodic Monitoring Report (PMR) that would identify each incidence of a deviation from a permit term or condition for the process flare, including those that occur during startups and shutdowns shall be prepared and submitted to the Department. The PMR report shall be submitted semi-annually on a calendar basis within 30 days of the end of the reporting period.

### **Applicability:**

- ADEM Admin. Code R. 335-3-16-.03, "*Major Source Operating Permits*". The emergency flare would be located at a facility that would be subject to MSOP regulations; therefore, this unit would be subject to this regulation.

### **New Source Performance Standards (NSPS)**

#### **Applicability:**

- 40 CFR 60 Subpart A, "*General Provisions*" would be subject to the engines provided that these units would be subject to one of the applicable subparts found under this subpart.

#### **Applicability:**

- The emergency flare would be subject to the requirements of §60.18 (b) of Subpart A, "*General Provisions*" since the flare would be used to comply with 40 CFR 60 Subpart KKK. During the December 10, 2008 permit modification, the flare requirements were revised to reflect compliance with §60.18 (b).

### **Emission Standards:**

- To demonstrate compliance with 40 CFR 60 Subpart KKK, the emergency flare shall meet the following specifications:
  - Shall be designed for and operated with no visible emissions, except for a 5-minute

### **EMERGENCY FLARE EMISSIONS**

period during any consecutive 2-hour period (40 CFR §60.18 (c)(1) )

- Method 22 of Subpart 60 Appendix A shall be used to determine compliance with this requirement. The observation period is 2 hours and shall be used according to Method 22 (40 CFR §60.18 (f)(1) and (40 CFR §60.113b(d)).
- Shall be operate with a flame present at all times as determined by 40 CFR §60.18(f) (40 CFR §60.18 (c)(2))
- The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame (40 CFR §60.18 (f)(2) and 40 CFR §60.113b(d)).
- Shall be steam-assisted, air-assisted, or non-assisted (40 CFR §60.18 (c)(6))
- Shall adhere to either the heat content specifications found in §60.18 (c)(3)(ii) and the maximum tip velocity specifications in 60.18 (c)(4) or adhere to the requirements of §60.18 (c)(3)(i) (40 CFR §60.18 (c)(3))
- The net heating value of gas being combusted in a flare would be determined as specified in 40 CFR §60.18 (f)(3) (40 CFR §60.113b(d))
- The actual exit velocity of the flare would be determined as specified in 40 CFR §60.18 (f)(4) (40 CFR §60.113b(d))
- The maximum permitted velocity for steam-assisted and non-assisted flares would be determined as specified in 40 CFR §60.18 (f)(5) (40 CFR §60.113b(d))
- The maximum permitted velocity for air assisted flares would be determined as specified in 40 CFR §60.18 (f)(6) (40 CFR §60.113b(d))
- Shall be monitored to ensure that they are operated and maintained in conformance with their designs (40 CFR §60.18 (d))
- Shall be operated at all times when emissions may be vented to them (40 CFR §60. 18 (e) and 40 CFR §60.113b(d)).

#### **Compliance and Performance Test Methods and Procedures:**

- Compliance with the visible emission standards shall be meet by conducting a daily visible emission observation of the emergency flare as specified in the opacity monitoring section of the existing permit for the emergency flare. Opacity monitoring shall utilize EPA Test Method 22.

## **EMERGENCY FLARE EMISSIONS**

### **Emission Monitoring:**

- Monitoring for the emergency flare shall be met by meeting the periodic monitoring and CAM plans for the flare.
- Opacity monitoring for the emergency flare shall be performed using EPA Test Method 22 of 40 CFR Part 60.

### **Recordkeeping and Reporting Requirements:**

- Except when the emergency flare is not operating, a record of daily visible emission observations shall be maintained.

### **Applicability:**

- 40 CFR 64, "*Compliance Assurance Monitoring (CAM)*". The emergency flare would be subject to the requirements of this regulation because it would meet all of the following criteria: have an emission limit or standard, use a control device to achieve compliance with the emission limit or standard, and have pre-controlled emissions from a regulated air pollutants that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source (40 CFR §64.2(a)).

The emergency flare would be used as a control device to comply with the work practice requirement to burn process gas containing 0.10 grains of H<sub>2</sub>S/scf established by the state. As defined in this subpart, an emission limitation or standard may be expressed in the form of a work practice, process or control parameter or other form of specific design, equipment, operational or operation and maintenance requirement (40 CFR §64.1). A regulated pollutant under ADEM Admin. Code R. 335-3-16-.01(w)(3) would include H<sub>2</sub>S since this pollutant would be subject to a standard promulgated under Section 111 (covering New Source Performance Standards) of the Clean Air Act. The pre-controlled hydrogen sulfide emissions from the flare are expected to exceed the 100 TPY major source threshold for a regulated air pollutant; therefore, this unit would be subject to CAM regulations.

Compliance with the requirement to burn each process gas stream containing 0.10 grains of H<sub>2</sub>S/scf shall be demonstrated by maintaining the presence of a flame or spark at the flare tip at all times when a process gas stream may be sent to it. A visual inspection of the flare for the presence of a flame or spark at the flare tip would be conducted daily if a continuous sparking flame igniter or continuous burning pilot light would not be used.

### **EMERGENCY FLARE EMISSIONS**

The recordkeeping and reporting requirements of the CAM plan for the flare found in the facility's current permit would remain unchanged. The facility would be required to submit an Excess Emissions and CMS Performance Summary Report that would identify each period in which there was a failure to maintain the presence of a spark or flame at the flare tip each time when process gas could have been sent to the flare. The report would be due semi-annually on a calendar basis within 30 days of the end of the reporting period.

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Chatom Oil and Gas Production, Treating, and Processing Facility  
Facility No. 108-0009

## **STORAGE TANKS EMISSIONS**

The following storage tanks are located at the Chatom Plant:

<b>Emission Point</b>	<b>Description</b>	<b>Pollutant</b>	<b>Emission Limit</b>	<b>Regulations</b>
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### **Individual Sources:**

(95-35 No. 1)- 16,922 Gallon Condensate/Gasoline Storage Tanks

(95-35 No. 2)- 16,922 Gallon Condensate/Gasoline Storage Tanks

(95-35 No. 3)- 16,922 Gallon Condensate/Gasoline Storage Tanks

(95-35 No. 4)- 16,922 Gallon Condensate/Gasoline Storage Tanks

The following sections would discuss the applicability of the storage tanks to federal regulations.

## **FEDERAL REGULATIONS**

### **New Source Performance Standards (NSPS)**

#### **Applicability:**

- Each storage vessel with a storage capacity greater than or equal to 75 cubic meter ( $m^3$ ) (or 19,812.9 gallons) that would be used to store volatile organic liquids (VOL), including petroleum liquid storage vessels, for which construction, reconstruction, or modification commenced after July 23, 1984 would be an affected facility under 40 CFR 60 Subpart Kb, "Standards of Performance for Storage Vessels for Volatile Organic Liquid Storage Vessels". In 1996, the facility replaced the originally permitted 6,000 barrel (252,000 gallon) floating roof condensate storage tank with four (4) 16,922 gallon fixed roof storage tanks. Because these condensate storage tanks do not have a capacity greater than or equal to 75  $m^3$  there would not be any applicable requirements under this subpart for these units (40 CFR §60.110b(a) & (d)(4)).

Chatom Gas Production, Treating, and Processing Facility  
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Recommendations

I recommend that Quantum Resources Management, LLC be issued its second Title V Renewal of Major Source Operating Permit No. 108-0009 for the Chatom Gas Production, Treatment, and Processing Facility. The facility should be able to meet the applicable state and federal regulations associated with each emission source.

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Harlotte M. Bolden-Wright  
Industrial Minerals Section  
Energy Branch  
Air Division

November 23, 2010

Draft Date

Chatom Gas Production, Treating, and Processing Facility  
Facility No. 108-0009

**ATTACHMENT A**

**DRAFT PROVISOS**

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## MAJOR SOURCE OPERATING PERMIT

Permittee: **QUANTUM RESOURCES MANAGEMENT, LLC**

Facility Name: **Chatom Gas Production, Treating, & Processing Facility**

Facility No.: 108-0009

Location: Highway 56 West, Chatom, Washington Co., AL

*In accordance with and subject to the provisions of the Alabama Air Pollution Control Act of 1971, as amended, Ala. Code 1975, §§22-28-1 to 22-28-23 (2006 Rplc. Vol.) (the "AAPCA") and the Alabama Environmental Management Act, as amended, Ala. Code 1975, §§22-22A-1 to 22-22A-15, (2006 Rplc. Vol.) and rules and regulations adopted thereunder, and subject further to the conditions set forth in this permit, the Permittee is hereby authorized to construct, install and use the equipment, device or other article described above.*

*Pursuant to the **Clean Air Act of 1990**, all conditions of this permit are federally enforceable by EPA, the Alabama Department of Environmental Management, and citizens in general. Those provisions which are not required under the **Clean Air Act of 1990** are considered to be state permit provisions and are not federally enforceable by EPA and citizens in general. Those provisions are contained in separate sections of this permit.*

Issuance Date: *draft*  
*November 23, 2010*

Expiration Date:

Effective Date:

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## Quantum Resources Management-Chatom Plant

## General Permit Provisos

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<p><b>1. <u>Transfer</u></b>  This permit is not transferable, whether by operation of law or otherwise, either from one location to another, from one piece of equipment to another, or from one person to another, except as provided in Rule 335-3-16-.13(1)(a)5.</p>	<p>Rule 335-3-16-.02(6)</p>
<p><b>2. <u>Renewals</u></b>  An application for permit renewal shall be submitted at least six (6) months, but not more than eighteen (18) months, before the date of expiration of this permit.  The source for which this permit is issued shall lose its right to operate upon the expiration of this permit unless a timely and complete renewal application has been submitted within the time constraints listed in the previous paragraph.</p>	<p>Rule 335-3-16-.12(2)</p>
<p><b>3. <u>Severability Clause</u></b>  The provisions of this permit are declared to be severable and if any section, paragraph, subparagraph, subdivision, clause, or phrase of this permit shall be adjudged to be invalid or unconstitutional by any court of competent jurisdiction, the judgment shall not affect, impair, or invalidate the remainder of this permit, but shall be confined in its operation to the section, paragraph, subparagraph, subdivision, clause, or phrase of this permit that shall be directly involved in the controversy in which such judgment shall have been rendered.</p>	<p>Rule 335-3-16-.05(e)</p>
<p><b>4. <u>Compliance</u></b>  (a) The permittee shall comply with all conditions of ADEM Admin. Code 335-3. Noncompliance with this permit will constitute a violation of the Clean Air Act of 1990 and ADEM Admin. Code 335-3 and may result in an enforcement action; including but not limited to, permit termination, revocation and reissuance, or modification; or denial of a permit renewal application by the permittee.</p>	<p>Rule 335-3-16-.05(f)</p>
<p>(b) The permittee shall not use as a defense in an enforcement action that maintaining compliance with conditions of this permit would have required halting or reducing the permitted activity.</p>	<p>Rule 335-3-16-.05(g)</p>
<p><b>5. <u>Termination for Cause</u></b>  This permit may be modified, revoked, reopened, and</p>	<p>Rule 335-3-16-.05(h)</p>



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<p>reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance will not stay any permit condition.</p>	
<p><b>6. <u>Property Rights</u></b></p> <p>The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.</p>	<p>Rule 335-3-16-.05(i)</p>
<p><b>7. <u>Submission of Information</u></b></p> <p>The permittee must submit to the Department, within 30 days or for such other reasonable time as the Department may set, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. Upon receiving a specific request, the permittee shall also furnish to the Department copies of records required to be kept by this permit.</p>	<p>Rule 335-3-16-.05(j)</p>
<p><b>8. <u>Economic Incentives, Marketable Permits, and Emissions Trading</u></b></p> <p>No permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in this permit.</p>	<p>Rule 335-3-16-.05(k)</p>
<p><b>9. <u>Certification of Truth, Accuracy, and Completeness:</u></b></p> <p>Any application form, report, test data, monitoring data, or compliance certification submitted pursuant to this permit shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.</p>	<p>Rule 335-3-16-.07(a)</p>
<p><b>10. <u>Inspection and Entry</u></b></p> <p>Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized representatives of the Alabama Department of Environmental Management and EPA to conduct the following:</p>	<p>Rule 335-3-16-.07(b)</p>

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<p>(a) Enter upon the permittee's premises where a source is located or emissions-related activity is conducted, or where records must be kept pursuant to the conditions of this permit;</p> <p>(b) Review and/or copy, at reasonable times, any records that must be kept pursuant to the conditions of this permit;</p> <p>(c) Inspect, at reasonable times, this facility's equipment (including monitoring equipment and air pollution control equipment), practices, or operations regulated or required pursuant to this permit;</p> <p>(d) Sample or monitor, at reasonable times, substances or parameters for the purpose of assuring compliance with this permit or other applicable requirements.</p>	
<p><b>11. <u>Compliance Provisions</u></b></p> <p>(a) The permittee shall continue to comply with the applicable requirements with which the company has certified that it is already in compliance.</p> <p>(b) The permittee shall comply in a timely manner with applicable requirements that become effective during the term of this permit.</p>	<p>Rule 335-3-16-.07(c)</p>
<p><b>12. <u>Compliance Certification</u></b></p> <p>A compliance certification shall be submitted annually by March 23.</p> <p>(a) The compliance certification shall include the following:</p> <p>(1) The identification of each term or condition of this permit that is the basis of the certification;</p> <p>(2) The compliance status;</p> <p>(3) The method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with Rule 335-3-16-.05(c) (Monitoring and Recordkeeping Requirements);</p> <p>(4) Whether compliance has been continuous or intermittent;</p>	<p>Rule 335-3-16-.07(e)</p>

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<p>(5) Such other facts as the Department may require to determine the compliance status of the source;</p> <p>(b) The compliance certification shall be submitted to:</p> <p>Alabama Department of Environmental Management Air Division P.O. Box 301463 Montgomery, AL 36130-1463 and to:</p> <p>Air and EPCRA Enforcement Branch EPA Region IV 61 Forsyth Street, SW Atlanta, GA 30303</p>	
<p><b>13. <u>Reopening for Cause</u></b></p> <p>Under any of the following circumstances, this permit will be reopened prior to the expiration of the permit:</p> <p>a) Additional applicable requirements under the Clean Air Act of 1990 become applicable to the permittee with a remaining permit term of three (3) or more years. Such a reopening shall be completed not later than eighteen (18) months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the date on which this permit is due to expire.</p> <p>(b) Additional requirements (including excess emissions requirements) become applicable to an affected source under the acid rain program. Upon approval by the Administrator, excess emissions offset plans shall be deemed to be incorporated into this permit.</p> <p>(c) The Department or EPA determines that this permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of this permit.</p> <p>(d) The Administrator or the Department determines that this permit must be revised or revoked to assure compliance with the applicable</p>	<p>Rule 335-3-16-.13(5)</p>

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<p>requirements.</p>	
<p><b>14. <u>Additional Rules and Regulations</u></b></p>	
<p>This permit is issued on the basis of Rules and Regulations existing on the date of issuance. In the event additional Rules and Regulations are adopted, it shall be the permit holder's responsibility to comply with such rules.</p>	<p>§22-28-16(d), Code of Alabama 1975, as amended</p>
<p><b>15. <u>Equipment Maintenance or Breakdown</u></b></p>	
<p>(a) In the case of shutdown of air pollution control equipment (which operates pursuant to any permit issued by the Director) for necessary scheduled maintenance, the intent to shut down such equipment shall be reported to the Director at least twenty-four (24) hours prior to the planned shutdown, unless such shutdown is accompanied by the shutdown of the source which such equipment is intended to control. Such prior notice shall include, but is not limited to the following:</p> <ul style="list-style-type: none"> <li>(1) Identification of the specific facility to be taken out of service as well as its location and permit number;</li> <li>(2) The expected length of time that the air pollution control equipment will be out of service;</li> <li>(3) The nature and quantity of emissions of air contaminants likely to occur during the shutdown period;</li> <li>(4) Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period;</li> <li>(5) The reasons that it would be impossible or impractical to shut down the source operation during the maintenance period.</li> </ul> <p>(b) In the event that there is a breakdown of equipment or upset of process in such a manner as to cause, or is expected to cause, increased emissions of air contaminants which are above an applicable standard, the person responsible for such equipment</p>	<p>Rule 335-3-1-.07(1) &amp; (2)</p>

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<p>shall notify the Director within 24 hours or the next working day and provide a statement giving all pertinent facts, including the estimated duration of the breakdown. The Director shall be notified when the breakdown has been corrected.</p>	
<p><b>16. <u>Operation of Capture and Control Devices</u></b></p> <p>All air pollution control devices and capture systems for which this permit is issued shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants shall be established.</p>	<p>§22-28-16(d), Code of Alabama 1975, as amended</p>
<p><b>17. <u>Obnoxious Odors</u></b></p> <p>This permit is issued with the condition that, should obnoxious odors arising from the plant operations be verified by Air Division inspectors, measures to abate the odorous emissions shall be taken upon a determination by the Alabama Department of Environmental Management that these measures are technically and economically feasible.</p>	<p>Rule 335-3-1-.08</p>
<p><b>18. <u>Fugitive Dust</u></b></p> <p>(a) Precautions shall be taken to prevent fugitive dust emanating from plant roads, grounds, stockpiles, screens, dryers, hoppers, ductwork, etc.</p> <p>(b) Plant or haul roads and grounds will be maintained in the following manner so that dust will not become airborne. A minimum of one, or a combination, of the following methods shall be utilized to minimize airborne dust from plant or haul roads and grounds:</p> <p>(1) By the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;</p> <p>(2) By reducing the speed of vehicular traffic to a point below that at which dust emissions are created;</p>	<p>Rule 335-3-4-.02</p>

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<p>(3) By paving;</p> <p>(4) By the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions;</p> <p>Should one, or a combination, of the above methods fail to adequately reduce airborne dust from plant or haul roads and grounds, alternative methods shall be employed, either exclusively or in combination with one or all of the above control techniques, so that dust will not become airborne. Alternative methods shall be approved by the Department prior to utilization.</p>	
<p><b>19. <u>Additions and Revisions</u></b></p> <p>Any modifications to this source shall comply with the modification procedures in Rules 335-3-16-.13 or 335-3-16-.14.</p>	<p>Rule 335-3-16-.13 &amp; Rule 335-3-16-.13.14</p>
<p><b>20. <u>Recordkeeping Requirements</u></b></p> <p>(a) Records of required monitoring information of the source shall include the following:</p> <p>(1) The date, place, and time of all sampling or measurements;</p> <p>(2) The date analyses were performed;</p> <p>(3) The company or entity that performed the analyses;</p> <p>(4) The analytical techniques or methods used;</p> <p>(5) The results of all analyses; and</p> <p>(6) The operating conditions that existed at the time of sampling or measurement.</p> <p>(b) Retention of records of all required monitoring data and support information of the source for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation and copies of all reports required by</p>	<p>Rule 335-3-16-.05(c)2.</p>

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<p>the permit</p> <p><b>21. <u>Reporting Requirements</u></b></p> <p>(a) Reports to the Department of any required monitoring shall be submitted at least every 6 months. All instances of deviations from permit requirements must be clearly identified in said reports. All required reports must be certified by a responsible official consistent with Rule 335-3-16-.04(9).</p> <p>(b) Deviations from permit requirements shall be reported within 48 hours or 2 working days of such deviations, including those attributable to upset conditions as defined in the permit. The report will include the probable cause of said deviations, and any corrective actions or preventive measures that were taken.</p> <p><b>22. <u>Emission Testing Requirements</u></b></p> <p>Each point of emission which requires testing will be provided with sampling ports, ladders, platforms, and other safety equipment to facilitate testing performed in accordance with procedures established by Part 60 of Title 40 of the Code of Federal Regulations, as the same may be amended or revised.</p> <p>The Air Division must be notified in writing at least 10 days in advance of all emission tests to be conducted and submitted as proof of compliance with the Department's air pollution control rules and regulations.</p> <p>To avoid problems concerning testing methods and procedures, the following shall be included with the notification letter:</p> <p>(1) The date the test crew is expected to arrive, the date and time anticipated of the start of the first run, how many and which sources are to be tested, and the names of the persons and/or testing company that will conduct the tests.</p> <p>(2) A complete description of each sampling train to be used, including type of media used in determining gas stream components, type of probe lining, type of filter media, and probe cleaning method and solvent to be used (if test procedures require</p>	<p>Rule 335-3-16-.05(c)(3).</p> <p>Rule 335-3-1-.05(3) &amp; Rule 335-3-1-.04(1)</p> <p>Rule 335-3-1-.04</p>

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<p>probe cleaning).</p> <p>(3) A description of the process(es) to be tested including the feed rate, any operating parameters used to control or influence the operations, and the rated capacity.</p> <p>(4) A sketch or sketches showing sampling point locations and their relative positions to the nearest upstream and downstream gas flow disturbances.</p> <p>A pretest meeting may be held at the request of the source owner or the Air Division. The necessity for such a meeting and the required attendees will be determined on a case-by-case basis.</p> <p>All test reports must be submitted to the Air Division within 30 days of the actual completion of the test unless an extension of time is specifically approved by the Air Division.</p>	<p>Rule 335-3-1-.04</p>
<p><b>23. <u>Payment of Emission Fees</u></b></p> <p>Annual emission fees shall be remitted each year according to the fee schedule in ADEM Admin. Code R. 335-1-7-.04.</p>	<p>Rule 335-1-7-.04</p>
<p><b>24. <u>Other Reporting and Testing Requirements</u></b></p> <p>Submission of other reports regarding monitoring records, fuel analyses, operating rates, and equipment malfunctions may be required as authorized in the Department's air pollution control rules and regulations. The Department may require emission testing at any time.</p>	<p>Rule 335-3-1-.04(1)</p>
<p><b>25. <u>Title VI Requirements (Refrigerants)</u></b></p> <p>Any facility having appliances or refrigeration equipment, including air conditioning equipment, which use Class I or Class II ozone-depleting substances as listed in 40 CFR Part 82, Subpart A, Appendices A and B, shall service, repair, and maintain such equipment according to the work practices, personnel certification requirements, and certified recycling and recovery equipment specified in 40 CFR Part 82, Subpart F.</p> <p>No person shall knowingly vent or otherwise release any Class I or Class II substance into the environment during the repair, servicing, maintenance, or disposal of any device</p>	<p>40 CFR Part 82</p>



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<p>except as provided in 40 CFR Part 82, Subpart F. The responsible official shall comply with all reporting and recordkeeping requirements of 40 CFR 82.166. Reports shall be submitted to the US EPA and the Department as required.</p>	
<p><b>26. <u>Chemical Accidental Prevention Provisions</u></b></p> <p>If a chemical listed in Table 1 of 40 CFR Part 68.130 is present in a process in quantities greater than the threshold quantity listed in Table 1, then:</p> <p>(a) The owner or operator shall comply with the provisions in 40 CFR Part 68.</p> <p>(b) The owner or operator shall submit one of the following:</p> <p>(1) A compliance schedule for meeting the requirements of 40 CFR Part 68 by the date provided in 40 CFR Part 68 § 68.10(a) or,</p> <p>(2) A certification statement that the source is in compliance with all requirements of 40 CFR Part 68, including the registration and submission of the Risk Management Plan.</p>	<p>40 CFR Part 68</p>
<p><b>27. <u>Display of Permit</u></b></p> <p>This permit shall be kept under file or on display at all times at the site where the facility for which the permit is issued is located and will be made readily available for inspection by any or all persons who may request to see it.</p>	<p>Rule 335-3-14-.01(1)(d)</p>
<p><b>28. <u>Circumvention</u></b></p> <p>No person shall cause or permit the installation or use of any device or any means which, without resulting in reduction in the total amount of air contaminant emitted, conceals or dilutes any emission of air contaminant which would otherwise violate the Division 3 rules and regulations.</p>	<p>Rule 335-3-1-.10</p>
<p><b>29. <u>Visible Emissions</u></b></p> <p>Unless otherwise specified in the Unit Specific provisos of this permit, any source of particulate emissions shall not discharge more than one 6-minute average opacity greater than 20% in any 60-minute period. At no time shall any source discharge a 6-minute average opacity of particulate</p>	<p>Rule 335-3-4-.01(1)</p>

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<p>emissions greater than 40%. Opacity will be determined by 40 CFR Part 60, Appendix A, Method 9, unless otherwise specified in the Unit Specific provisos of this permit.</p>	
<p><b>30. <u>Fuel-Burning Equipment</u></b></p> <p>(a) Unless otherwise specified in the Unit Specific provisos of this permit, no fuel-burning equipment may discharge particulate emissions in excess of the emissions specified in Part 335-3-4-.03.</p> <p>(b) Unless otherwise specified in the Unit Specific provisos of this permit, no fuel-burning equipment may discharge sulfur dioxide emissions in excess of the emissions specified in Part 335-3-5-.01.</p>	<p>Rule 335-3-4-.03</p> <p>Rule 335-3-5-.01</p>
<p><b>31. <u>Process Industries – General</u></b></p> <p>Unless otherwise specified in the Unit Specific provisos of this permit, no process may discharge particulate emissions in excess of the emissions specified in Part 335-3-4-.04.</p>	<p>Rule 335-3-4-.04</p>
<p><b>32. <u>Averaging Time for Emission Limits</u></b></p> <p>Unless otherwise specified in the permit, the averaging time for the emission limits listed in this permit shall be the nominal time required by the specific test method.</p>	<p>Rule 335-3-1-.05</p>
<p><b>33. <u>Compliance Assurance Monitoring (CAM)</u></b></p> <p>Conditions (a) through (d) that follow are general conditions applicable to emissions units that are subject to the CAM requirements. Specific requirements related to each emissions unit are contained in the unit specific provisos and the attached CAM appendices.</p> <p>(a) Operation of Approved Monitoring</p> <p>(1) <i>Commencement of operation.</i> The owner or operator shall conduct the monitoring required under this section and detailed in the unit specific provisos and CAM appendix of this permit (if required) upon issuance of the permit, or by such later date specified in the permit pursuant to §64.6(d).</p> <p>(2) <i>Proper maintenance.</i> At all times, the owner or operator shall maintain the monitoring,</p>	<p>§64.7</p>

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<p>including but not limited to, maintaining necessary parts for routine repairs of the monitoring equipment.</p> <p>(3) <i>Continued operation.</i> Except for, as applicable, monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), the owner or operator shall conduct all monitoring in continuous operation (or shall collect data at all required intervals) at all times that the pollutant-specific emissions unit is operating. Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations, or fulfilling a minimum data availability requirement, if applicable. The owner or operator shall use all the data collected during all other periods in assessing the operation of the control device and associated control system. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.</p> <p>(4) <i>Response to excursions or exceedances.</i> (a) Upon detecting an excursion or exceedance, the owner or operator shall restore operation of the pollutant-specific emissions unit (including the control device and associated capture system) to its normal or usual manner of operation as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions. The response shall include minimizing the period of any startup, shutdown or malfunction and taking any necessary corrective actions to restore normal operation and prevent the likely recurrence of the cause of an excursion or exceedance (other than those caused by excused startup or shutdown conditions). Such actions may include initial inspection</p>	

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<p>and evaluation, recording that operations returned to normal without operator action (such as through response by a computerized distribution control system), or any necessary follow-up actions to return operation to within the indicator range, designated condition, or below the applicable emission limitation or standard, as applicable.</p> <p>(b) Determination of whether the owner or operator has used acceptable procedures in response to an excursion or exceedance will be based on information available, which may include but is not limited to, monitoring results, review of operation and maintenance procedures and records, and inspection of the control device, associated capture system, and the process.</p> <p>(5) <i>Documentation of need for improved monitoring.</i> After approval of monitoring under this part, if the owner or operator identifies a failure to achieve compliance with an emission limitation or standard for which the approved monitoring did not provide an indication of an excursion or exceedance while providing valid data, or the results of compliance or performance testing document a need to modify the existing indicator ranges or designated conditions, the owner or operator shall promptly notify the Department and, if necessary, submit a proposed modification to the permit to address the necessary monitoring changes. Such a modification may include, but is not limited to, reestablishing indicator ranges or designated conditions, modifying the frequency of conducting monitoring and collecting data, or the monitoring of additional parameters.</p> <p>(b) Quality Improvement Plan (QIP) Requirements</p> <p>(1) Based on the results of a determination made under Section 33(a)(4)(b) above, the Administrator or the permitting authority may require the owner or operator to develop and implement a QIP. Consistent with 40 CFR §64.6(c)(3), the permit may specify an appropriate threshold, such as an</p>	<p>§64.8</p>

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<p>accumulation of exceedances or excursions exceeding 5 percent duration of a pollutant-specific emissions unit's operating time for a reporting period, for requiring the implementation of a QIP. The threshold may be set at a higher or lower percent or may rely on other criteria for purposes of indicating whether a pollutant-specific emissions unit is being maintained and operated in a manner consistent with good air pollution control practices.</p> <p>(2) Elements of a QIP:</p> <p>(i) The owner or operator shall maintain a written QIP, if required, and have it available for inspection.</p> <p>(ii) The plan initially shall include procedures for evaluating the control performance problems and, based on the results of the evaluation procedures, the owner or operator shall modify the plan to include procedures for conducting one or more of the following actions, as appropriate:</p> <p>(I) Improved preventive maintenance practices.</p> <p>(II) Process operation changes.</p> <p>(III) Appropriate improvements to control methods.</p> <p>(IV) Other steps appropriate to correct control performance.</p> <p>(V) More frequent or improved monitoring (only in conjunction with one or more steps under paragraphs (2)(b)(i) through (iv) above).</p> <p>(3) If a QIP is required, the owner or operator shall develop and implement a QIP as expeditiously as practicable and shall notify the Department</p>	

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<p>if the period for completing the improvements contained in the QIP exceeds 180 days from the date on which the need to implement the QIP was determined.</p> <p>(4) Following implementation of a QIP, upon any subsequent determination pursuant to Section 33(a)(4)(b) above, the Department may require that an owner or operator make reasonable changes to the QIP if the QIP is found to have:</p> <p>(i) Failed to address the cause of the control device performance problems; or</p> <p>(ii) Failed to provide adequate procedures for correcting control device performance problems as expeditiously as practicable in accordance with good air pollution control practices for minimizing emissions.</p> <p>(5) Implementation of a QIP shall not excuse the owner or operator of a source from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act.</p>	
<p>(c) Reporting and Recordkeeping Requirements</p> <p>(1) General reporting requirements</p> <p>(i) On and after the date specified in Section 33(a)(1) above by which the owner or operator must use monitoring that meets the requirements of this part, the owner or operator shall submit monitoring reports to the permitting authority in accordance with ADEM Admin. Code R. 335-3-16-.05(c)3.</p> <p>(ii) A report for monitoring under this part shall include, at a minimum, the information required under ADEM Admin. Code R. 335-3-16-.05(c)3. and</p>	<p>§64.9</p>

# Quantum Resources Management-Chatom Plant

## General Permit Provisos

Federally Enforceable Provisos	Regulations
<p>the following information, as applicable:</p> <ul style="list-style-type: none"> <li>(I) Summary information on the number, duration and cause (including unknown cause, if applicable) of excursions or exceedances, as applicable, and the corrective actions taken;</li> <li>(II) Summary information on the number, duration and cause (including unknown cause, if applicable) for monitor downtime incidents (other than downtime associated with zero and span or other daily calibration checks, if applicable); and</li> <li>(III) A description of the actions taken to implement a QIP during the reporting period as specified in Section 33(b) above. Upon completion of a QIP, the owner or operator shall include in the next summary report documentation that the implementation of the plan has been completed and reduced the likelihood of similar levels of excursions or exceedances occurring.</li> </ul> <p>(2) General recordkeeping requirements.</p> <ul style="list-style-type: none"> <li>(i) The owner or operator shall comply with the recordkeeping requirements specified in ADEM Admin. Code R. 335-3-16-.05(c)2.. The owner or operator shall maintain records of monitoring data, monitor performance data, corrective actions taken, any written quality improvement plan required pursuant to Section 33(b) above and any activities undertaken to implement a quality improvement plan, and other supporting information required to be maintained under this part (such as</li> </ul>	

# Quantum Resources Management-Chatom Plant

## General Permit Provisos

Federally Enforceable Provisos	Regulations
<p>data used to document the adequacy of monitoring, or records of monitoring maintenance or corrective actions).</p> <p>(ii) Instead of paper records, the owner or operator may maintain records on alternative media, such as microfilm, computer files, magnetic tape disks, or microfiche, provided that the use of such alternative media allows for expeditious inspection and review, and does not conflict with other applicable recordkeeping requirements.</p> <p>(d) Savings Provisions</p> <p>(1) Nothing in this part shall:</p> <p>(i) Excuse the owner or operator of a source from compliance with any existing emission limitation or standard, or any existing monitoring, testing, reporting or recordkeeping requirement that may apply under federal, state, or local law, or any other applicable requirements under the Act. The requirements of this part shall not be used to justify the approval of monitoring less stringent than the monitoring which is required under separate legal authority and are not intended to establish minimum requirements for the purpose of determining the monitoring to be imposed under separate authority under the Act, including monitoring in permits issued pursuant to title I of the Act. The purpose of this part is to require, as part of the issuance of a permit under title V of the Act, improved or new monitoring at those emissions units where monitoring requirements do not exist or are inadequate to meet the requirements of this part.</p> <p>(ii) Restrict or abrogate the authority of the Department to impose additional or</p>	<p>§64.10</p>



## Quantum Resources Management-Chatom Plant

### General Permit Provisos

Federally Enforceable Provisos	Regulations
<p>more stringent monitoring, recordkeeping, testing, or reporting requirements on any owner or operator of a source under any provision of the Act, including but not limited to sections 114(a)(1) and 504(b), or state law, as applicable.</p> <p>(iii) Restrict or abrogate the authority of the Department to take any enforcement action under the Act for any violation of an applicable requirement or of any person to take action under section 304 of the Act.</p>	

# Quantum Resources Management-Chatom Plant

## Summary Page for Process Heaters & Boilers

**Permitted Operating Schedule:**

**24** Hours/Day x **365** Days/Year = **8,760** Hours/Year

### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
10184287	40.2 MMBtu/Hour Utility Boiler, Natural Gas-Fired	SO <sub>2</sub>	0.22 Lbs/MMBtu of heat input	Rule 335-3-14-.04 (Anti-PSD)
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)
10184282	20.8 MMBTU/Hour Process Heater, Natural Gas-Fired	SO <sub>2</sub>	4 Lbs/MMBTU of heat input	Rule 335-3-5-.01(1)(b)
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)
STABILIZER	16.5 MMBTU/Hour Stabilizer Reboiler, Natural Gas-Fired,	SO <sub>2</sub>	4 Lbs/MMBTU of heat input	Rule 335-3-5-.01(1)(b)
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)

# Quantum Resources Management-Chatom Plant

## Provisos for Heaters & Boilers

Federally Enforceable Provisos	Regulations
<i>Applicability</i>	
1. Each heating unit shall be subject to the requirements of ADEM Admin. Code R. 335-3-4-.01, “ <i>Visible Emissions</i> ” and the requirements specified in this subpart of this permit.	Rule 335-3-4-.01
2. The 20.8 MMBTU/Hour process heater and the 16.5 MMBTU/Hour stabilizer reboiler shall be subject to the requirements of ADEM Admin. Code R. 335-3-5-.01(1)(b), “ <i>Fuel Combustion</i> ” and the requirements specified in this subpart of this permit.	Rule 335-3-5-.01(1)(b)
3. Except as provided for in §60.40c(d) of 40 CFR Part 60, Subpart D <sub>c</sub> , the 40.2 MMBTU/hr utility boiler shall comply with the requirements specified in 40 CFR Part 60, Subpart D <sub>c</sub> , “ <i>Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units</i> ” and to the requirements of this subpart of this permit.	Rule 335-10-.02(2)(c) & §60.40c
4. The 40.2 MMBTU/hr utility boiler has emission limitations that allow it to be a synthetic minor source when determining applicability to the requirements of ADEM Admin. Code R. 335-3-14-.04, “ <i>Prevention of Significant Deterioration</i> ” and the requirements specified in this subpart of this permit.	Rule 335-14-.04
5. Each heating unit shall be subject to the requirements of Rule 335-3-16, “ <i>Major Source Operating Permits</i> ” as specified in the Alabama Department of Environmental Management Administrative Code and in this subpart of this permit.	Rule 335-3-16-.03
<i>Emissions Standards</i>	
1. Each heater and boiler shall meet the following opacity standards:	Rule 335-3-4-.01(1)
(a) Except for one 6-minute period during any 60-minute period, the boiler shall not discharge into the atmosphere particulate that results in an opacity greater than 20%, as determined by a 6-minute average.	Rule 335-3-4-.01(1)(a)

# Quantum Resources Management-Chatom Plant

## Provisos for Heaters & Boilers

Federally Enforceable Provisos	Regulations
<p>(b) At no time shall the boiler discharge into the atmosphere particulate that results in an opacity greater than 40%, as determined by a 6-minute average.</p>	Rule 335-3-4-.01(1)(b)
<p>2. The heater and boilers shall adhere to the following requirements:</p>	
<p>(a) The 40.2 MMBTU/hr utility boiler shall not emit more than 0.22 Lbs Sulfur dioxide per MMBTU of heat input.</p>	Rule 335-3-14-.04
<p>(b) The 20.8 MMBTU/hr process heater and 16.5 MMBTU/hr stabilizer reboiler shall not emit more than 4.0 Lbs Sulfur dioxide per MMBTU of heat input.</p>	Rule 335-3-5-.01(1)(b)
<p><i>Compliance and Performance Test Methods and Procedures</i></p>	Rule 335-3-16-.05(c)(1)(i)
<p>1. Compliance with the opacity standards shall be met by conducting a visible emission observation using Method 9 or Method 22 of 40 CFR 60, Appendix A when visible emissions in excess of the opacity standards are observed from the heating units.</p>	Rule 335-3-1-.05
<p>2. The fuel gas shall be tested for BTU and hydrogen sulfide content in accordance to the requirements specified in proviso 2(a) through (c) of this section of this subpart.</p>	
<p>(a) BTU and hydrogen sulfide content testing shall occur at a frequency of no less than once every six (6) months.</p>	
<p>(b) Each sample shall be analyzed for its BTU content by utilizing the ASTM Analysis Method D1826-77 or equivalent method.</p> <p style="text-align: right;">[ Fuel Heat Content (BTU/Scf) ]</p>	
<p>(c) Each sample collected shall be analyzed utilizing the Tutwiler procedures found in 40 CFR §60.648 or the chromatographic analysis procedures found in ASTM E-260 or the stain tube procedures found in GPA 2377-86 or those provided by the stain tube manufacture.</p> <p style="text-align: right;">[ Fuel H<sub>2</sub>S (ppmv) ]</p>	

# Quantum Resources Management-Chatom Plant

## Provisos for Heaters & Boilers

Federally Enforceable Provisos	Regulations
<p>(d) The frequency of analysis may be modified upon receiving Departmental approval.</p> <p><i>Emission Monitoring</i></p> <p>1. Visible emission observations (VEO) as specified in Appendix D of this permit shall be utilized for each heating unit during periods when there is an exceedance of the opacity standards found in proviso 1 of the <i>emission standards</i> section of this subpart of this permit. Daily visual inspections are not required.</p> <p><i>Recordkeeping and Reporting Requirements</i></p> <p>1. A record of the following information shall be maintained and made available for inspection for all heating units onsite.</p> <p>(a) The date, starting time, and duration of each deviation or exceedance of the requirements specified in the <i>emission standards</i> section of this subpart along with the cause and corrective actions taken.</p> <p>(b) Date and type of boiler maintenance that affects air emissions</p> <p>(c) Facility fuel:</p> <p>(1) Fuel gas BTU content [ Fuel Heat Content (BTU/Scf) ]</p> <p>(2) Fuel gas hydrogen sulfide content [ Fuel H<sub>2</sub>S (ppmv)]</p> <p>(d) Lbs SO<sub>2</sub>/MMBTU =  <math display="block">\frac{[\text{Fuel H}_2\text{S (ppmv)}] \times [0.1684]}{\text{Fuel Heat Content (BTU/Scf)}}</math></p> <p>(e) Results of each occurrence when a visible emission observation was conducted</p> <p>2. For the 40.2 MMBTU/hr utility boiler, the following additional requirements are applicable:</p>	<p>Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.04</p> <p>Rule 335-3-4-.01(2)</p> <p>Rule 335-3-16-.05(c)(2) Rule 335-3-1-.04</p>

## Quantum Resources Management-Chatom Plant

### Provisos for Heaters & Boilers

Federally Enforceable Provisos	Regulations
(a) The amount of natural gas combusted shall be recorded monthly and stored in a manner suitable for inspection for a period of five (5) years following the date the record is made.	§60.48c(g) & §60.48c(i) [As modified by EPA letter dated May 27, 2003.]
(b) Monitoring reports detailing all information required by Subpart D <sub>c</sub> of 40 CFR 60 shall be submitted within 30 days following the end of the calendar year.	§60.48c(j) [As modified by EPA letter dated May 27, 2003]
3. Each deviation from the requirements specified in this subpart, including those that occur during startups, shutdowns, and malfunctions, shall be reported to the Department in a manner that complies with proviso 15(b) and 21(b) of the general proviso subpart of this permit.	Rule 335-3-16-.05(c)(2) Rule 335-3-1-.04 Rule 335-3-16-.05(c)(3)(ii)

## **Quantum Resources Management-Chatom Plant**

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# Quantum Resources Management-Chatom Plant

## Summary Page for the 750 BHP Inlet Gas Compressor Engines

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8,760 Hours/Year

### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
10187136	<b>Inlet Gas Compressor Engine No. 1 (East):</b> 750 BHP Waukesha, L7042 GU, Natural Gas-Fired, Four Stroke Rich Burn ICE, w/Catalytic Converter	NO <sub>x</sub>	2.48 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		VOC	1.65 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76% or more	§63.6585 Table 2d(10) 40 CFR 63, Subpart ZZZZ
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)
10184350	<b>Inlet Gas Compressor Engine No. 2 (Middle):</b> 750 BHP Waukesha, L7042 GU, Natural Gas-Fired, Four Stroke Rich Burn ICE, w/Catalytic Converter	NO <sub>x</sub>	2.48 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		VOC	1.65 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76% or more	§63.6585 Table 2d(10) 40 CFR 63, Subpart ZZZZ
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)
10187132	<b>Inlet Gas Compressor Engine No. 3 (West):</b> 750 BHP Waukesha, L7042 GU, Natural Gas-Fired, Four Stroke Rich Burn ICE, w/Catalytic Converter	NO <sub>x</sub>	2.48 Lbs/hr	Rule 335-3-14-.04 (Anti-PSD)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76% or more	§63.6585 Table 2d(10) 40 CFR 63, Subpart ZZZZ
		Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)



# Quantum Resources Management-Chatom Plant

## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<i>Applicability</i>	
1. Each inlet gas compressor engine shall be subject to the requirements of ADEM Admin. Code R. 335-3-4-.01, “ <i>Visible Emissions</i> ” and the requirements specified in this subpart of this permit.	Rule 335-3-4-.01
2. Each inlet gas compressor engine has emission limitations that allow them to be synthetic minor sources when determining applicability to the requirements of ADEM Admin. Code R. 335-3-14-.04, “ <i>Prevention of Significant Deterioration</i> ” and the requirements specified in this subpart of this permit.	Rule 335-14-.04
3. Each inlet gas compressor engine shall be subject to the requirements of ADEM Admin. Code R. 335-3-16, “ <i>Major Source Operating Permits</i> ” and the requirements specified in this subpart of this permit.	Rule 335-3-16-.03
4. Each inlet gas compressor engine shall be subject to the applicable requirements of 40 CFR 63, Subpart ZZZZ, “ <i>National Emission Standards for Hazardous Air Pollutant (HAP) for Stationary Reciprocating Internal Combustion Engines (RICE)</i> ” for an existing stationary RICE located at an area source of HAP emissions.	§63.6585(c)
<i>Emission Standards</i>	
1. Each inlet compressor engine shall meet the following opacity standards:	Rule 335-3-4-.01(1)
(a) Except for one 6-minute period during any 60-minute period, the engine shall not discharge into the atmosphere particulate that results in an opacity greater than 20%, as determined by a 6-minute average.	Rule 335-3-4-.01(1)(a)
(b) At no time shall the engine discharge into the atmosphere particulate that results in an opacity greater than 40%, as determined by a 6-minute average.	Rule 335-3-4-.01(1)(b)
2. The inlet gas compressor engines shall adhere to the following emission limits:	

# Quantum Resources Management-Chatom Plant

## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<ul style="list-style-type: none"> <li>(a) Engine Nos. 1, 2, and 3 shall emit not more than 2.48 Lbs/hr of Nitrogen Oxide (NO<sub>x</sub>) each.</li> <li>(b) Engine Nos. 1 and 2 shall not emit more than 1.65 Lbs/hr of Volatile Organic Compounds (VOC) each.</li> <li>(c) To demonstrate compliance with the emission limitations found in 40 CFR 63, Subpart ZZZZ, each inlet compressor engine shall comply with one of the following requirements by no later than October 19, 2013: <ul style="list-style-type: none"> <li>(1) Limit the concentration of formaldehyde in the stationary RICE exhaust to 2.7 ppmvd or less at 15% O<sub>2</sub></li> <li>(2) Reduce formaldehyde emissions by 76% or more.</li> </ul> </li> </ul>	<p>Rule 335-14-.04 (Anti-PSD limit)</p> <p>Rule 335-14-.04 (Anti-PSD limit)</p> <p>Table 2d (10) 40 CFR 63, Subpart ZZZZ §63.6595(a)(1) §63.6603 (a)</p>
<p><i>Compliance and Performance Test Methods and Procedures</i></p>	<p>Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.04</p>
<ul style="list-style-type: none"> <li>1. Compliance with the opacity standards shall be met by conducting a visible emission observation using Method 9 or Method 22 of 40 CFR 60, Appendix A when visible emissions in excess of the opacity standards are observed from the engines.</li> <li>2. To demonstrate compliance with their PSD limits, the inlet gas compressor engines shall be tested in accordance with the following requirements once every five (5) years: <ul style="list-style-type: none"> <li>(a) NO<sub>x</sub> testing for Engine Nos. 1, 2, and 3 shall be conducted according to the requirements of one of the following methods: <ul style="list-style-type: none"> <li>(1) 40 CFR 60 Appendix A, Method 7; or</li> <li>(2) 40 CFR 60 Appendix A, Method 7A; or</li> <li>(3) 40 CFR 60 Appendix A, Method 7B; or</li> <li>(4) 40 CFR 60 Appendix A, Method 7C; or</li> <li>(5) 40 CFR 60 Appendix A, Method 7D; or</li> </ul> </li> </ul> </li> </ul>	<p>Rule 335-3-4-.01(2)</p> <p>Rule 335-3-14-.04</p>

# Quantum Resources Management-Chatom Plant

## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<ul style="list-style-type: none"> <li>(6) 40 CFR 60 Appendix A, Method 7E; or</li> <li>(7) Other methodology approved by the Department.</li> </ul> <p>(b) VOC testing for Engine Nos. 1 and 2 shall be conducted according to the requirements of one of the following methods:</p> <ul style="list-style-type: none"> <li>(1) 40 CFR 60 Appendix A, Method 18; or</li> <li>(2) 40 CFR 60 Appendix A, Method 25; or</li> <li>(3) 40 CFR 60 Appendix A, Method 25A; or</li> <li>(4) 40 CFR 60 Appendix A, Method 25B; or</li> <li>(5) 40 CFR 60 Appendix A, Method 25C; or</li> <li>(6) 40 CFR 60 Appendix A, Method 25D; or</li> <li>(7) 40 CFR 60 Appendix A, Method 25E; or</li> <li>(8) Other methodology approved by the Department.</li> </ul>	
<p>3. Determine the NO<sub>x</sub> and VOC emission factors for each inlet gas compressor engine in pounds per million BTU during the above test.</p> <p style="text-align: right;">[Test (Lbs/MMBTU)]</p>	Rule 335-3-1-.04
<p>4. To demonstrate compliance with the formaldehyde emission limitations found in 40 CFR 63, Subpart ZZZZ, each inlet gas compressor engine shall meet the following requirements:</p> <ul style="list-style-type: none"> <li>(a) Meet the general compliance requirements specified in §63.6605 (a) and (b)</li> <li>(b) Except as specified in §63.6612(b) of 40 CFR 63, Subpart ZZZZ, an initial performance test shall be performed meeting the following requirements:</li> </ul>	<p>§63.6605</p> <p>§63.6612</p>

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## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(1) Testing shall be conducted within 180 days after the October 19, 2013 compliance date for existing engines located at an area source of HAP and according to the provisions in §63.7(a)(2).	§63.6612(a) and (b)
(2) Formaldehyde emissions shall be reduced by complying with the following requirements:	Table 4 (2)(a) 40 CFR 63, Subpart ZZZZ
(i) Select a sampling port location and the number of traverse points using Method 1 or 1A of 40 CFR part 60 appendix A §63.7(d)(1)(i). Sampling sites must be located at the inlet and outlet of the control device.	Table 4 (2)(a)(i)(1)(a) 40 CFR 63, Subpart ZZZZ
(ii) Measure O <sub>2</sub> at the inlet and outlet of the control device using Method 3 or 3A or 3B of 40 CFR part 60, Appendix A, or ASTM Method D6522-00 (2005). Measurements to determine O <sub>2</sub> concentration must be made at the same time as the measurements for formaldehyde concentration.	Table 4 (2)(a)(ii)(1)(a) 40 CFR 63, Subpart ZZZZ
(iii) Measure moisture content at the inlet and outlet of the control device using Method 4 of 40 CFR part 60, Appendix A, or Test Method 320 of 40 CFR part 63, Appendix A, or ASTM D6348-03. Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.	Table 4 (2)(a)(iii)(1)(a) 40 CFR 63, Subpart ZZZZ
(iv) Measure formaldehyde at the inlet and the outlet of the control device using Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03, provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130. Formaldehyde concentration must be at 15 percent O <sub>2</sub> , dry basis. Results of this test shall consist of the average of the three 1-hour or longer runs.	Table 4 (2)(a)(iv)(1)(a) 40 CFR 63, Subpart ZZZZ

# Quantum Resources Management-Chatom Plant

## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(3) Each performance test shall consist of three separate test runs as specified in §63.7(e)(3) and each test run must last at least one hour.</p> <p>(i) Compliance with the percent reduction requirement shall be met by complying with the procedures specified in §63.6620(e)(1).</p> <p>(ii) Compliance with the requirement to correct formaldehyde concentrations to 15 % O<sub>2</sub> shall be met by complying with the procedures specified in §63.6620(e)(2).</p>	<p>§63.6620(d)</p>
<p>(4) Initial compliance with the emission limitation shall be demonstrated provided that all of the following requirements are met:</p> <p>(i) The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction</p> <p>(ii) A continuous parameter monitoring system (CPMS) to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b) has been installed.</p> <p>(iii) The catalyst pressure drop and catalyst inlet temperature during the initial performance test has been recorded.</p>	<p>Table 5 (4) 40 CFR 63, Subpart ZZZZ §63.6612</p> <p>Table 5 (4)(i) 40 CFR 63, Subpart ZZZZ</p> <p>Table 5 (4)(ii) 40 CFR 63, Subpart ZZZZ</p> <p>Table 5 (4)(iii) 40 CFR 63, Subpart ZZZZ</p>
<p>(c) Continuous compliance shall be demonstrated by meeting all of the following requirements:</p> <p>(1) Meeting the monitoring and data collection requirements as specified in §63.6635</p> <p>(2) Conducting subsequent performance tests every 8,760 hours or 3 years, whichever comes first</p>	<p>§63.6635 §63.6640</p> <p>Table 3 (4) Table 6(10)(a)(i) 40 CFR 63, Subpart ZZZZ §63.6615</p>

## Quantum Resources Management-Chatom Plant

### Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(3) Collecting the catalyst inlet temperature data according to § 63.6625(b)	Table 6(10)(a)(ii) 40 CFR 63, Subpart ZZZZ
(4) Reducing data to 4-hour rolling averages	Table 6(10)(a)(iii) 40 CFR 63, Subpart ZZZZ
(5) Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature	Table 6(10)(a)(iv) 40 CFR 63, Subpart ZZZZ
(6) Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test	Table 6(10)(a)(v) 40 CFR 63, Subpart ZZZZ
(7) Reporting deviations from the emissions limitation according to the requirements of §63.6650	§63.6640(b)
(8) Operating the engines in accordance with the startup, shutdown, and malfunction plan during periods of startup, shutdown and malfunction	§63.6640(c)
5. The fuel gas shall be tested for its BTU and hydrogen sulfide (H <sub>2</sub> S) content in accordance to the following requirements:	Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.05
(a) The BTU and hydrogen sulfide content testing shall occur at a frequency of no less than once every six (6) months.	
(b) Each sample shall be analyzed for its BTU content by utilizing the ASTM Analysis Method D1826-77 or equivalent method.	
[ Fuel Heat Content (BTU/Scf) ]	
(c) Each sample collected shall be analyzed for its H <sub>2</sub> S content utilizing the Tutwiler procedures found in 40 CFR §60.648 or the chromatographic analysis procedures found in ASTM E-260 or the stain tube procedures found in GPA 2377-86 or those provided by the stain tube manufacture, or other methods approved by the Department.	

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## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
[ Fuel H <sub>2</sub> S ( ppmv) ]	
(d) The frequency of testing may be modified upon receiving Departmental approval.	
<i>Emission Monitoring</i>	Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.04
1. Visible emission observations (VEO) as specified in Appendix D of this permit shall be utilized for each engine during periods when there is an exceedance of the opacity standards found in proviso 1 of the <i>emission standards</i> section of this subpart of this permit. Daily visual inspections are not required.	Rule 335-3-4-.01(2)
2. Periodic Monitoring meeting the requirements specified in Appendix A of this permit shall be utilized for the inlet compressor engines.	Rule 335-1-.04
(a) The monitored parameter may be changed only upon Departmental approval.	
3. A metering system shall be utilized that is capable of continuously monitoring and recording the volumetric flow rate of fuel gas into the engine.	Rule 335-1-.04
4. A CPMS shall be installed, operated and maintained as specified in §63.6625(b).	§63.6625(b)
5. An engine's time spent at idle during startup shall be minimized and the engine's startup time shall be minimized to a period needed for appropriate and safe loading of the engine as specified in §63.6625(h).	§63.6625(h)
6. The temperature measurement device for the inlet gas compressor engines must meet the requirements specified in §63.6625(k).	§63.6625(k)
7. Periodic monitoring shall be met by maintaining records as specified in the <i>recordkeeping and reporting requirements</i> section of this subpart.	Rule 335-3-1-.04
<i>Recordkeeping and Reporting Requirements</i>	Rule 335-3-16-.05(c)(2)(i) Rule 335-3-1-.04
1. A monthly record of the following shall be maintained for each inlet compressor engine:	

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## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(a) Engine emissions:</p> <p>(1) Engine fuel consumption [Fuel Volume (MScf/Month) ]</p> <p>(2) Fuel gas heat content [ Fuel Heat Content (BTU/Scf) ]</p> <p>(3) Fuel gas hydrogen sulfide content [ Fuel H<sub>2</sub>S (ppmv) ]</p> <p>(4) Engine Fuel Heat Input (MMBTU/Month) =  <math display="block">\frac{[\text{Fuel Volume (MScf/Month)}] \times [\text{Fuel Heat Content (BTU/Scf)}]}{1,000}</math></p> <p>(5) NO<sub>x</sub> &amp; VOC emissions shall be determined as follows:</p> <p>(i) Lbs/Month =  <math display="block">[\text{Fuel Heat Input (MMBTU/Month)}] \times [\text{Test (Lbs/MMBTU)}]</math></p> <p><i>Test emission factors (Lbs/MMBTU) shall be equal to the most recent engine tests results.</i></p> <p>(6) Date and type of engine maintenance that affects air emissions.</p> <p>(b) Gas compressor load:</p> <p>(1) Total engine operating hours ( Hrs )</p> <p>(2) Maintenance performed</p> <p>(3) Pollutant emissions ( Lbs/hr )</p> <p>(c) Results of each occurrence when a visible emission observation was conducted on each engine</p>	
<p>2. The following notifications shall be submitted to demonstrate compliance with the requirements of 40 CFR 63, Subpart ZZZZ:</p>	<p>§63.6645</p>



## Quantum Resources Management-Chatom Plant

### Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(a) Initial Notification meeting the applicable requirements found in §63.6645(a)	§63.6645(a)(2)
(b) Notification of Intent to conduct a performance test shall be submitted to the Department at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1)	§63.6645(g)
(c) Notification of Compliance Status, including the performance test results, shall be submitted to the Department within 60 days of completion of the performance test according to §63.9(h)(2)(ii)	§63.6645(h)(2)
3. The following records shall be kept to demonstrate compliance with the requirements of 40 CFR 63, Subpart ZZZZ:	§63.6655
(a) Records specified in §63.6655(a) to demonstrate compliance with emission and operating limitations	§63.6655(a)
(b) Records for each CEMS or CPMS as specified in §63.6655(b)(1) through (3)	§63.6655(b)
(c) Records required in Table 6 of 40 CFR 63, Subpart ZZZZ to demonstrate continuous compliance	Table 6 40 CFR 63, Subpart ZZZZ
4. Records maintained to demonstrate compliance with the requirements of 40 CFR 63, Subpart ZZZZ shall meet the following requirements:	§63.6660
(a) Each record shall be kept in a form suitable and readily available for expeditious review according to §63.10(b)(1)	§63.6660(a)
(b) Each record shall be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record	§63.6660(b)
(c) Each record shall be readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record	§63.6660(c)

## Quantum Resources Management-Chatom Plant

### Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>5. For the purpose of demonstrating compliance with proviso 21(a) of the <i>general provisos</i> subpart of this permit, a Periodic Monitoring Report (PMR) meeting the following requirements shall be submitted to the Department:</p> <p>(a) Each report shall identify each incidence of deviation from a permit term or condition including those that occur during startups, shutdowns, and malfunctions.</p> <p>(1) A deviation shall mean any condition determined by observation, by data collected by any continuous monitoring system or periodic monitoring required by the permit that can be used to determine compliance, that identifies an affected source has failed to meet an applicable emission limit or standard or that a work practice was not complied with or completed.</p> <p>(2) If during the reporting period no deviation events occurred, a statement that indicates there were no deviations from the permit requirements shall be included in the report.</p> <p>(b) A deviation shall consist of, but is not limited to, any period during which the following occurs:</p> <p>(1) The opacity exceeded 20% for more than one 6-minute averaging period during any consecutive 60-minute period.</p> <p>(2) The opacity exceeded 40% during any 6-minute averaging period.</p> <p>(3) The catalyst was deemed to be defective</p> <p>(4) The NO<sub>x</sub> and/or VOC emissions from the engines exceeded their allowable emission standards.</p> <p>(5) The requirements of the <i>compliance and performance test methods and procedures</i> section of this subpart are not being met.</p> <p>(6) The requirements of the <i>emission monitoring</i> section of this subpart are not being met.</p>	<p>Rule 335-3-16-.05(c)(3)(i)</p>

# Quantum Resources Management-Chatom Plant

## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(7) The requirements of the <i>recordkeeping and reporting</i> section of this subpart are not being met.</p> <p>(c) Except as provided for in proviso 5(d) of this section, the following information shall be provided in the report:</p> <p>(1) For each deviation event, the following information shall be submitted.</p> <ul style="list-style-type: none"> <li>(i) Emission source description</li> <li>(ii) Permit requirement</li> <li>(iii) Date</li> <li>(iv) Starting time</li> <li>(v) Duration</li> <li>(vi) Actual quantity</li> <li>(vii) Cause</li> <li>(viii) Action taken to return to compliance</li> <li>(ix) Total operating hours of the affected source during the reporting period</li> <li>(x) Total hours of deviation events during the reporting period</li> <li>(xi) Total hours of deviation events that occurred during start ups, shut downs, and malfunctions during the reporting period</li> </ul> <p>(d) The report content and format in proviso 5(c) of this section may be modified upon receipt of Departmental approval.</p> <p>6. To demonstrate the compliance with the reporting requirements of 40 CFR 63, Subpart ZZZZ, a Compliance Report containing the following information shall be submitted to the Department:</p>	<p>§63.6650(f) Table 7(1), 40 CFR 63, Subpart ZZZZ</p>

## Quantum Resources Management-Chatom Plant

### Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(a) Company name and address	§63.6650(c)(1)
(b) Statement by a responsible official, with that official's name title, and signature certifying the accuracy of the content of the report	§63.6650(c)(2)
(c) Date of report and beginning and ending dates of the reporting period.	§63.6650(c)(3)
(d) A statement indicating no deviation from any emission or operating limitation occurred shall be included if no deviations occurred during the reporting period.	§63.6650(c)(5)
(e) Provided that a deviation has occurred and a CMS is being used to comply with a limitation, the information specified in §63.6650(c)(1) through (4) and §63.6650(e)(1) through (12) of Subpart ZZZZ shall be provided in the report.	§63.6650(e)
(f) A statement indicating there were no periods during which the CMS was out-of-control shall be submitted, if no such periods occurred during the reporting period.	§63.6650(c)(6)
(g) If during the reporting period there were periods of malfunction, as defined in §63.6675 of Subpart ZZZZ, the information specified in §63.6650(c)(4) of Subpart ZZZZ shall be provided in the report.	§63.6675 §63.6650(c)(4)
(h) A deviation, as defined in §63.6675 of Subpart ZZZZ shall consist of the following instances:  (1) Failure to meet any requirement or obligation under this subpart, including but not limited to any emission limitation or operating limitation  (2) Failure to meet any term or condition that is adopted to implement an applicable requirement and that is included in the operating permit for any affected source required to obtain such a permit	§63.6675

# Quantum Resources Management-Chatom Plant

## Provisos for Inlet Gas Compressor Engines

Federally Enforceable Provisos	Regulations						
<p>(3) Failure to meet any emission limitation or operating limitation during malfunction, regardless of whether or not such failure is permitted</p> <p>(4) Failure to conform to any provisions of the applicable startup, shutdown, or malfunction plan, or to satisfy the general duty to minimize emission established in §63.6(e)(1)(i).</p>							
<p>7. Each report specified in provisos 5 and 6 of the <i>recordkeeping and reporting requirement</i> section of this subpart of this permit shall be submitted using the following reporting schedule:</p> <table> <tr> <th data-bbox="223 907 630 940"><u>Reporting Period</u></th><th data-bbox="766 907 965 940"><u>Submittal Date</u></th></tr> <tr> <td data-bbox="223 952 630 985">January 1<sup>st</sup> through June 30<sup>th</sup></td><td data-bbox="766 952 965 985">July 31<sup>st</sup></td></tr> <tr> <td data-bbox="223 996 630 1030">July 1<sup>st</sup> through December 31<sup>st</sup></td><td data-bbox="766 996 965 1030">January 31<sup>st</sup></td></tr> </table>	<u>Reporting Period</u>	<u>Submittal Date</u>	January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>	July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>	<p>§63.6650(b)</p>
<u>Reporting Period</u>	<u>Submittal Date</u>						
January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>						
July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>						
<p>8. Each deviation from the requirements specified in the <i>emission standards</i> section of this subpart, including those that occur during start ups, shut downs, and malfunctions, shall be reported to the Department in a manner that complies with proviso 15(b) and 21(b) of the general proviso subpart of this permit.</p>	<p>Rule 335-3-16-.05(c)(3)(ii)</p>						

# Quantum Resources Management-Chatom Plant

## Summary Page for 580 BHP Refrigeration Gas Compressor Engines

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8760 Hours/Year

### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
10222555	<b>Refrigeration Compressor Engine No. 1</b> 580 BHP Waukesha, L7042 GU, Natural Gas-Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76 % or more	§63.6585 Table 2d(10) 40 CFR 63, Subpart ZZZZ
10184310	<b>Refrigeration Compressor Engine No. 2</b> 580 BHP Waukesha, L7042 GU, Natural Gas-Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20%  AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)
		Formaldehyde	2.7 ppmvd or less at 15% O <sub>2</sub> Or Reduce emissions by 76 % or more	§63.6585 Table 2d(10) 40 CFR 63, Subpart ZZZZ

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p><i>Applicability</i></p> <ol style="list-style-type: none"> <li>Each refrigeration gas compressor engine shall be subject to the requirements of ADEM Admin. Code R. 335-3-4-.01, “<i>Visible Emissions</i>” and the requirements specified in this subpart of this permit.</li> <li>Each refrigeration gas compressor engine shall be subject to the requirements of ADEM Admin. Code R. 335-3-16, “<i>Major Source Operating Permits</i>” and the requirements specified in this subpart of this permit.</li> <li>Each refrigeration gas compressor engine shall be subject to the applicable requirements of 40 CFR 63, Subpart ZZZZ, “<i>National Emission Standards for Hazardous Air Pollutant (HAP) for Stationary Reciprocating Internal Combustion Engines (RICE)</i>” for an existing stationary RICE located at an area source of HAP emissions.</li> </ol>	<p>Rule 335-3-4-.01</p> <p>Rule 335-3-16-.03</p> <p>§63.6585(c)</p>
<p><i>Emission Standards</i></p> <ol style="list-style-type: none"> <li>Each refrigeration gas compressor shall meet the following opacity standards: <ol style="list-style-type: none"> <li>Except for one 6-minute period during any 60-minute period, the engine shall not discharge into the atmosphere particulate that results in an opacity greater than 20%, as determined by a 6-minute average.</li> <li>At no time shall the engine discharge into the atmosphere particulate that results in an opacity greater than 40%, as determined by a 6-minute average.</li> </ol> </li> <li>To demonstrate compliance with the emission standards found in 40 CFR 63, Subpart ZZZZ, each refrigeration gas compressor engine shall comply with one of the following requirements by no later than October 19, 2013: <ol style="list-style-type: none"> <li>Limit the concentration of formaldehyde in the stationary RICE exhaust to 2.7 ppmvd or less at 15% O<sub>2</sub></li> </ol> </li> </ol>	<p>Rule 335-3-4-.01(1)</p> <p>Rule 335-3-4-.01(1)(a)</p> <p>Rule 335-3-4-.01(1)(b)</p> <p>Table 2d (10) 40 CFR 63, Subpart ZZZZ §63.6595(a)(1) §63.6603 (a)</p>

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(2) Reduce formaldehyde emissions by 76% or more.	
<i>Compliance and Performance Test Methods and Procedures</i>	Rule 335-3-1-.05
1. Compliance with the opacity standards shall be met by conducting a visible emission observation using Method 9 or Method 22 of 40 CFR 60, Appendix A when visible emissions in excess of the opacity standards are observed from the engines.	
2. To demonstrate compliance with the formaldehyde emission standards, each refrigeration gas compressor engine shall meet the following requirements:	
(a) Meet the general compliance requirements specified in §63.6605 (a) and (b)	§63.6605
(1) Except as specified in §63.6612(b) of 40 CFR 63, Subpart ZZZZ, an initial performance test shall be performed meeting the following requirements:	
(2) Testing shall be conducted within 180 days after the October 19, 2013 compliance date for existing engines located at an area source of HAP and according to the provisions in §63.7(a)(2).	§63.6612(a) and (b)
(3) Formaldehyde emissions shall be reduced by complying with all of the following requirements:	Table 4 (2)(a) 40 CFR 63, Subpart ZZZZ
(i) Select a sampling port location and the number of traverse points using Method 1 or 1A of 40 CFR part 60 appendix A §63.7(d)(1)(i). Sampling sites must be located at the inlet and outlet of the control device.	Table 4 (2)(a)(i)(1)(a) 40 CFR 63, Subpart ZZZZ



# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(ii) Measure O<sub>2</sub> at the inlet and outlet of the control device using Method 3 or 3A or 3B of 40 CFR part 60, Appendix A, or ASTM Method D6522-00 (2005). Measurements to determine O<sub>2</sub> concentration must be made at the same time as the measurements for formaldehyde concentration.</p>	<p>Table 4 (2)(a)(ii)(1)(a) 40 CFR 63, Subpart ZZZZ</p>
<p>(iii) Measure moisture content at the inlet and outlet of the control device using Method 4 of 40 CFR part 60, Appendix A, or Test Method 320 of 40 CFR part 63, Appendix A, or ASTM D6348-03. Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.</p>	<p>Table 4 (2)(a)(iii)(1)(a) 40 CFR 63, Subpart ZZZZ</p>
<p>(iv) Measure formaldehyde at the inlet and the outlet of the control device using Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03, provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130. Formaldehyde concentration must be at 15 percent O<sub>2</sub>, dry basis. Results of this test shall consist of the average of the three 1-hour or longer runs.</p>	<p>Table 4 (2)(a)(iv)(1)(a) 40 CFR 63, Subpart ZZZZ</p>
<p>(b) Each performance test shall consist of three separate test runs as specified in §63.7(e)(3) and each test run must last at least one hour.</p>	<p>§63.6620(d)</p>
<p>(1) Compliance with the percent reduction requirement shall be met by complying with the procedures specified in §63.6620(e)(1).</p>	
<p>(i) Compliance with the requirement to correct formaldehyde concentrations to 15 % O<sub>2</sub> shall be met by complying with the procedures specified in §63.6620(e)(2).</p>	

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(2) Initial compliance with the emission limitation shall be demonstrated provided that all of the following requirements are met:</p> <p>(i) The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction</p> <p>(ii) A continuous parameter monitoring system (CPMS) has been installed that continuously monitors operating parameters approved by the Department (if any) according to the requirements in §63.6625(b).</p> <p>(I) If you are not using non-selective catalytic reduction (NSCR) to comply with the emission limitation to reduce formaldehyde or if you are not using an oxidation catalyst or NSCR to comply with the requirement to limit the formaldehyde concentration in the exhaust, the initial performance test shall not be conducted until the requirements found in 63.6620(f) have been met.</p> <p>(iii) The approved operating parameters (if any) are recorded during the initial performance test.</p> <p>(c) Continuous compliance shall be demonstrated by meeting all of the following requirements:</p> <p>(1) Meeting the monitoring and data collection requirements as specified in §63.6635</p> <p>(2) Conducting subsequent performance tests every 8,760 hours or 3 years, whichever comes first.</p>	<p>Table 5 (5) 40 CFR 63, Subpart ZZZZ §63.6612</p> <p>Table 5 (5)(i) 40 CFR 63, Subpart ZZZZ</p> <p>Table 5 (5)(ii) 40 CFR 63, Subpart ZZZZ</p> <p>63.6620(f)</p> <p>Table 5 (5)(iii) 40 CFR 63, Subpart ZZZZ</p> <p>§63.6635 §63.6640</p> <p>Table 3 (4) &amp; Table 6(11)(a)(i) 40 CFR 63, Subpart ZZZZ §63.6615</p>

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(3) Collecting the approved operating parameter (if any) data according to § 63.6625(b)	Table 6(11)(a)(ii) 40 CFR 63, Subpart ZZZZ
(4) Reducing data to 4-hour rolling averages	Table 6(11)(a)(iii) 40 CFR 63, Subpart ZZZZ
(5) Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test	Table 6(11)(a)(iv) 40 CFR 63, Subpart ZZZZ
(6) Reporting deviations from the emissions limitation according to the requirements of §63.6650.	§63.6640(b)
(7) Operating the engines in accordance with the startup, shutdown, and malfunction plan during periods of startup, shutdown and malfunction	§63.6640(c)
<i>Emission Monitoring</i>	Rule 335-3-4-.01(2)
1. Visible emission observations (VEO) as specified in Appendix D of this permit shall be utilized for each engine during periods when there is an exceedance of the opacity standards found in proviso 1 of the <i>emission standards</i> section of this subpart of this permit. Daily visual inspections are not required.	
2. A CPMS shall be installed, operated and maintained as specified in §63.6625(b)	§63.6625(b)
3. An engine's time spent at idle during startup shall be minimized and the engine's startup time shall be minimized to a period needed for appropriate and safe loading of the engine as specified in §63.6625(h).	§63.6625(h)
<i>Recordkeeping and Reporting Requirements</i>	Rule 335-3-16-.05(c)(2)(i) Rule 335-3-1-.04
1. A monthly record of the following shall be maintained for each engine:	
(a) Total engine operating hours	( Hrs )

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<ul style="list-style-type: none"> <li>(b) Maintenance performed</li> <li>(c) Results of each occurrence when a visible emission observation was conducted on each engine</li> </ul>	
<p>2. To demonstrate compliance with the requirements of 40 CFR 63, Subpart ZZZZ, the following notifications shall be submitted to the Department:</p>	
<ul style="list-style-type: none"> <li>(a) Initial Notification meeting the applicable requirements found in §63.6645(a)</li> </ul>	§63.6645(a)(2)
<ul style="list-style-type: none"> <li>(b) Notification of Intent to conduct a performance test should be submitted to the Department at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1)</li> </ul>	§63.6645(g)
<ul style="list-style-type: none"> <li>(c) Notification of Compliance Status, including the performance test results, should be submitted to the Department within 60 days of completion of the performance test according to §63.9(h)(2)(ii)</li> </ul>	§63.6645(h)(2)
<p>3. To demonstrate compliance with the requirements of 40 CFR 63, Subpart ZZZZ, the following records shall be maintained:</p>	
<ul style="list-style-type: none"> <li>(a) Records specified in §63.6655(a) to demonstrate compliance with emission and operating limitations</li> </ul>	§63.6655(a)
<ul style="list-style-type: none"> <li>(b) Records for each CEMS or CPMS as specified in §63.6655(b)(1) through (3)</li> </ul>	§63.6655(b)
<ul style="list-style-type: none"> <li>(c) Records required in Table 6 Subpart ZZZZ to demonstrate continuous compliance</li> </ul>	Table 6 40 CFR 63, Subpart ZZZZ
<p>4. Records maintained to demonstrate compliance with the requirements of 40 CFR 63, Subpart ZZZZ shall meet the following requirements:</p>	
<ul style="list-style-type: none"> <li>(a) Each record shall be kept in a form suitable and readily available for expeditious review according to §63.10(b)(1)</li> </ul>	§63.6660(a)
<ul style="list-style-type: none"> <li>(b) Each record shall be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record</li> </ul>	§63.6660(b)

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(c) Each record shall be readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record</p>	<p>§63.6660(c)</p>
<p>5. For the purpose of demonstrating compliance with proviso 21(a) of the <i>general provisos</i> subpart of this permit, a Periodic Monitoring Report (PMR) meeting the following requirements shall be submitted to the Department:</p>	<p>Rule 335-3-16-.05(c)(3)(i)</p>
<p>(a) Each report shall identify each incidence of deviation from a permit term or condition including those that occur during startups, shutdowns, and malfunctions.</p>	
<p>(1) A deviation shall mean any condition determined by observation, by data collected by any continuous monitoring system or periodic monitoring required by the permit that can be used to determine compliance, that identifies an affected source has failed to meet an applicable emission limit or standard or that a work practice was not complied with or completed.</p>	
<p>(2) If during the reporting period no deviation events occurred, a statement that indicates there were no deviations from the permit requirements shall be included in the report.</p>	
<p>(b) A deviation shall consist of, but is not limited to, any period during which the following occurs:</p>	
<p>(1) The opacity exceeded 20% for more than one 6-minute averaging period during any consecutive 60-minute period.</p>	
<p>(2) The opacity exceeded 40% during any 6-minute averaging period.</p>	
<p>(3) The requirements of the <i>emission monitoring</i> section of this subpart are not being met.</p>	
<p>(4) The requirements of the <i>compliance and performance test methods and procedures</i> section of this subpart are not being met.</p>	

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
<p>(5) The requirements of the <i>recordkeeping and reporting</i> section of this subpart are not being met.</p> <p>(c) Except as provided for in proviso 5(d) of this section, the following information shall be provided in the report:</p> <p>(1) For each deviation event, the following information shall be submitted.</p> <p>(i) Emission source description</p> <p>(ii) Permit requirement</p> <p>(iii) Date</p> <p>(iv) Starting time</p> <p>(v) Duration</p> <p>(vi) Actual quantity</p> <p>(vii) Cause</p> <p>(viii) Action taken to return to compliance</p> <p>(ix) Total operating hours of the affected source during the reporting period</p> <p>(x) Total hours of deviation events during the reporting period</p> <p>(xi) Total hours of deviation events that occurred during start ups, shut downs, and malfunctions during the reporting period</p> <p>(d) The report content and format in proviso 5(c) of this section may be modified upon receipt of Departmental approval.</p> <p>6. To demonstrate the compliance with the reporting requirements of 40 CFR 63, Subpart ZZZZ a Compliance Report containing the following information shall be submitted to the Department:</p>	<p>§63.6650(f) Table 7(1), 40 CFR 63, Subpart ZZZZ</p>

## Quantum Resources Management-Chatom Plant

### Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations
(a) Company name and address	§63.6650(c)(1)
(b) Statement by a responsible official, with that official's name title, and signature certifying the accuracy of the content of the report	§63.6650(c)(2)
(c) Date of report and beginning and ending dates of the reporting period.	§63.6650(c)(3)
(d) A statement indicating no deviation from any emission or operating limitation occurred shall be included if no deviations occurred during the reporting period.	§63.6650(c)(5)
(e) Provided that a deviation has occurred and a CMS is being used to comply with a limitation, the information specified in §63.6650(c)(1) through (4) and §63.6650(e)(1) through (12) of Subpart ZZZZ shall be provided in the report.	§63.6650(e)
(f) A statement indicating there were no periods during which the CMS was out-of-control shall be submitted, if no such periods occurred during the reporting period.	§63.6650(c)(6)
(g) If during the reporting period there were periods of malfunction, as defined in §63.6675 of Subpart ZZZZ, the information specified in §63.6650(c)(4) of Subpart ZZZZ shall be provided in the report.	§63.6675 §63.6650(c)(4)
(h) A deviation, as defined in §63.6675 of Subpart ZZZZ shall consist of the following instances:  (1) Failure to meet any requirement or obligation under this subpart, including but not limited to any emission limitation or operating limitation  (2) Failure to meet any term or condition that is adopted to implement an applicable requirement and that is included in the operating permit for any affected source required to obtain such a permit	§63.6675

# Quantum Resources Management-Chatom Plant

## Provisos for Refrigeration Gas Compressor Engines

Federally Enforceable Provisos	Regulations						
<p>(3) Failure to meet any emission limitation or operating limitation during malfunction, regardless of whether or not such failure is permitted</p> <p>(4) Failure to conform to any provisions of the applicable startup, shutdown, or malfunction plan, or to satisfy the general duty to minimize emission established in §63.6(e)(1)(i).</p> <p>7. Each report specified in provisos 5 and 6 of the <i>recordkeeping and reporting requirement</i> section of this subpart of this permit shall be submitted using the following reporting schedule:</p> <table> <tr> <th><u>Reporting Period</u></th><th><u>Submittal Date</u></th></tr> <tr> <td>January 1<sup>st</sup> through June 30<sup>th</sup></td><td>July 31<sup>st</sup></td></tr> <tr> <td>July 1<sup>st</sup> through December 31<sup>st</sup></td><td>January 31<sup>st</sup></td></tr> </table>	<u>Reporting Period</u>	<u>Submittal Date</u>	January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>	July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>	<p>§63.6650(b)</p>
<u>Reporting Period</u>	<u>Submittal Date</u>						
January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>						
July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>						
<p>8. Each deviation from the requirements specified in the <i>emission standards</i> section of this subpart, including those that occur during start ups, shut downs, and malfunctions, shall be reported to the Department in a manner that complies with proviso 15(b) and 21(b) of the general proviso subpart of this permit.</p>	<p>Rule 335-3-16-.05(c)(3)(ii)</p>						



## **Quantum Resources Management-Chatom Plant**

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# Quantum Resources Management-Chatom Plant

## Summary Page for Miscellaneous Engines

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8760 Hours/Year

### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
10184350	<b>Re-compressor Engine No. 1</b> 458 BHP Waukesha L5108, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
10184351	<b>Re-compressor Engine No. 2</b> 458 BHP Waukesha L5108, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
10184133	<b>Electric Generator Engine No. 1</b> 375 HP Waukesha L3521, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
10184119	<b>Electric Generator Engine No. 2</b> 375 HP Waukesha L3521, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
10184134	<b>Electric Generator Engine No. 3</b> 375 HP Waukesha L3521, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)
10184135	<b>Electric Generator Engine No. 4</b> 375 HP Waukesha L3521, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b) §63.6585 Subpart ZZZZ Table 2d(9)

## Quantum Resources Management-Chatom Plant

### Summary Page for Miscellaneous Engines (Continued)

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8,760 Hours/Year

**Emission limitations:**

Emission Point #	Description	Pollutant	Emission Limit	Regulation
10184144	<b>Electric Generator Engine No. 5</b> 375 HP Waukesha L3521, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)  §63.6585 Subpart ZZZZ Table 2d(9)
10184131	<b>Electric Generator Engine No. 6</b> 375 HP Waukesha L3521, Natural Gas Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)  §63.6585 Subpart ZZZZ Table 2d(9)
11059224A	<b>Injection Compressor Engine No. 1</b> 145 BHP Caterpillar G3306NA, Natural Gas-Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)  §63.6585 Subpart ZZZZ Table 2d(9)
11059224B	<b>Injection Compressor Engine No. 2</b> 145 BHP Caterpillar G3306NA, Natural Gas-Fired, Four Stroke Rich Burn ICE	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40% Work Practice	Rule 335-3-4-.01(1)(a)  Rule 335-3-4-.01(1)(b)  §63.6585 Subpart ZZZZ Table 2d(9)

# Quantum Resources Management-Chatom Plant

## Provisos for Miscellaneous Engines

Federally Enforceable Provisos	Regulations
<p><i>Applicability</i></p> <ol style="list-style-type: none"> <li>Each miscellaneous engine shall be subject to the requirements of ADEM Admin. Code R. 335-3-4-.01, “Visible Emissions” and the requirements specified in this subpart of this permit.</li> <li>Each miscellaneous engine shall be subject to the requirements of ADEM Admin. Code R. 335-3-16, “Major Source Operating Permits” and the requirements specified in this subpart of this permit.</li> <li>Each miscellaneous engine shall be subject to the applicable requirements of 40 CFR 63, Subpart ZZZZ, “National Emission Standards for Hazardous Air Pollutant (HAP) for Stationary Reciprocating Internal Combustion Engines (RICE)” for an existing stationary RICE located at an area source of HAP emissions.</li> </ol>	<p>Rule 335-3-4-.01</p> <p>Rule 335-3-16-.03</p> <p>§63.6585(c)</p>
<p><i>Emission Standards</i></p> <ol style="list-style-type: none"> <li>Each miscellaneous engine shall meet the following opacity standards: <ol style="list-style-type: none"> <li>Except for one 6-minute period during any 60-minute period, the engine shall not discharge into the atmosphere particulate that results in an opacity greater than 20%, as determined by a 6-minute average.</li> <li>At no time shall the engine discharge into the atmosphere particulate that results in an opacity greater than 40%, as determined by a 6-minute average.</li> </ol> </li> <li>To demonstrate compliance with the work, operation or management practice requirements for 40 CFR 63, Subpart ZZZZ, the miscellaneous engines shall comply with the following requirements:</li> </ol>	<p>Rule 335-3-4-.01(1)</p> <p>Rule 335-3-4-.01(1)(a)</p> <p>Rule 335-3-4-.01(1)(b)</p> <p>Table 2d(9) 40 CFR 63, Subpart ZZZZ</p>

# Quantum Resources Management-Chatom Plant

## Provisos for Miscellaneous Engines

Federally Enforceable Provisos	Regulations
<p>(a) Change oil and filter every 1,440 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(j) in order to extend the specified oil change requirement</p> <p>(b) Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first</p> <p>(c) Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.</p>	<p>Table 2d(9)(a) 40 CFR 63, Subpart ZZZZ</p> <p>Table 2d(9)(b) 40 CFR 63, Subpart ZZZZ</p> <p>Table 2d(9)(c) 40 CFR 63, Subpart ZZZZ</p>
<p><i>Compliance and Performance Test Methods and Procedures</i></p>	<p>Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.05</p>
<p>1. Compliance with the opacity standards shall be met by conducting a visible emission observation using Method 9 or Method 22 of 40 CFR 60, Appendix A when visible emissions in excess of the opacity standards are observed from the engines.</p>	<p>Rule 335-3-4-.01(2)</p>
<p>2. Continuous compliance with the requirements of 40 CFR 63, Subpart ZZZZ shall be demonstrated by meeting one of the following requirements:</p>	<p>§63.6640(a) Table 6(9) 40 CFR 63, Subpart ZZZZ</p>
<p>(a) Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions;</p>	<p>Table 6(9) (a)(i) 40 CFR 63, Subpart ZZZZ</p>
<p>(b) Developing and following your own maintenance plan meeting the requirements of §63.6625(e)(8)</p>	<p>Table 6(9) (a)(ii) 40 CFR 63, Subpart ZZZZ</p>
<p><i>Emission Monitoring</i></p>	<p>Rule 335-3-16-.05(c)(1) Rule 335-3-1-.04</p>
<p>1. Visible emission observations (VEO) as specified in Appendix D of this permit shall be utilized for each engine during periods when there is an exceedance of the opacity standards found in proviso 1 of the <i>emission standards</i> section of this subpart of this permit. Daily visual inspections are not required.</p>	<p>Rule 335-3-4-.01(2)</p>

# Quantum Resources Management-Chatom Plant

## Provisos for Miscellaneous Engines

Federally Enforceable Provisos	Regulations
<p>2. Each miscellaneous engine must be operated and the stationary RICE and after-treatment control device (if any) must be maintained according to the manufacturer's emission-related written instruction or a developed maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution practice for minimizing emissions.</p>	<p>§63.6625(e)(8)</p>
<p>3. Each miscellaneous engines' time spent at idle during startup shall be minimized and the engine's startup time shall be minimized to a period needed for appropriate and safe loading of the engine as specified in §63.6625(h).</p>	<p>§63.6625(h)</p>
<p><i>Recordkeeping and Reporting Requirements</i></p>	<p>Rule 335-3-16-.05(c)(2) Rule 335-3-1-.04</p>
<p>1. A monthly record of the following shall be maintained:</p> <p>(a) Total engine operating hours ( Hrs )</p>	
<p>(b) Maintenance performed on each miscellaneous engine to demonstrate that the unit was operated and maintained according to its maintenance plan.</p>	<p>§63.6655(e)(3)</p>
<p>(c) Results of each occurrence when a visible emission observation was conducted on each engine</p>	
<p>2. Records that demonstrate compliance with 40 CFR 63, Subpart ZZZZ shall be maintained as follows:</p>	<p>§63.6660</p>
<p>(a) Each record shall be kept in a form suitable and readily available for expeditious review according to §63.10(b)(1)</p>	<p>§63.6660(a)</p>

## Quantum Resources Management-Chatom Plant

### Provisos for Miscellaneous Engines

Federally Enforceable Provisos	Regulations
(b) Each record shall be kept for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record	§63.6660(b)
(c) Each record shall be readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record	§63.6660(c)

# Quantum Resources Management-Chatom Plant

## Summary Page for Sulfur Recovery Unit and Thermal Oxidizer

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8760 Hours/Year

### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
(10184323)	Thermal oxidizer	Opacity	No more than one 6 min avg. > 20% AND No 6 min avg. > 40%	Rule 335-3-4-.01(1)(a) Rule 335-3-4-.01(1)(b)
		H <sub>2</sub> S	Burn gas with 0.10 grains of H <sub>2</sub> S/scf	Rule 335-3-5-.03(1)
		H <sub>2</sub> S	20 ppbv offsite	Rule 335-3-5-.03(2)
	<b>Sulfur Recovery Unit (SRU)</b>			
	Available Sulfur for Category II Counties		Depends on available sulfur	Rule 335-3-5-.03(3)
	Available sulfur ≤ 10 LTons/Day Or Available sulfur > 10 LTons/Day and ≤ 50 LTons/Day Or Available sulfur > 50 LTons/Day and ≤ 100 LTons/Day Or Available sulfur > 100 LTons/Day	SO <sub>2</sub>	Unlimited	
		SO <sub>2</sub>	560 Lbs SO <sub>2</sub> /Hour	
		SO <sub>2</sub>	0.10 Lbs SO <sub>2</sub> /Lb Sulfur	
		SO <sub>2</sub>	0.08 Lbs SO <sub>2</sub> /Lb Sulfur	
	Allowable SO <sub>2</sub> emission increases relative to the H <sub>2</sub> S content of acid gas:		Depends on the mole % of H <sub>2</sub> S in Dry Acid Gas	Rule 335-3-5-.03(3)(a)
	H <sub>2</sub> S% in acid gas > 50% & ≤ 60% Or H <sub>2</sub> S% in acid gas > 40% & ≤ 50% Or H <sub>2</sub> S% in acid gas > 30% & ≤ 40% Or H <sub>2</sub> S% in acid gas > 20% & ≤ 30%	SO <sub>2</sub>	0.02 Lbs SO <sub>2</sub> /Lb Sulfur	
		SO <sub>2</sub>	0.04 Lbs SO <sub>2</sub> /Lb Sulfur	
		SO <sub>2</sub>	0.06 Lbs SO <sub>2</sub> /Lb Sulfur	
		SO <sub>2</sub>	0.10 Lbs SO <sub>2</sub> /Lb Sulfur	



# Quantum Resources Management-Chatom Plant

## Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p><i>Applicability</i></p> <ol style="list-style-type: none"> <li>The thermal oxidizer shall be subject to the requirements of ADEM Admin. Code R. 335-3-4-.01, "<i>Visible Emissions</i>" and this subpart of this permit.</li> <li>The Chatom Plant shall be subject to the requirements of ADEM Admin. Code R. 335-3-5-.03, "<i>Petroleum Production</i>" and this subpart of this permit. The facility handles gas or refinery gas that contains more than 0.10 grains of hydrogen (H<sub>2</sub>S) per standard cubic foot (Scf).</li> <li>The thermal oxidizer shall be subject to the requirements of ADEM Admin. Code R. 335-3-16, "<i>Major Source Operating Permits</i>" and in this subpart of this permit.</li> <li>The sulfur recovery unit and the thermal oxidizer shall be subject to the requirements specified in 40 CFR Part 64, "<i>Compliance Assurance Monitoring</i>" as indicated in proviso 33 of the General Permit Provisos subpart and in this subpart of this permit.</li> </ol>	<p>Rule 335-3-4-.01(1)</p> <p>Rule 335-3-5-.03(1)</p> <p>Rule 335-3-16-.03</p> <p>40 CFR §64</p>
<p><i>Emission Standards</i></p> <ol style="list-style-type: none"> <li>The thermal oxidizer shall meet the following opacity standards: <ol style="list-style-type: none"> <li>Except for one 6-minute period during any 60-minute period, the thermal oxidizer shall not discharge into the atmosphere particulate that results in an opacity greater than 20%, as determined by a 6-minute average.</li> <li>At no time shall the thermal oxidizer discharge into the atmosphere particulate that results in an opacity greater than 40%, as determined by a 6-minute average.</li> </ol> </li> </ol>	<p>Rule 335-3-4-.01(1)</p> <p>Rule 335-3-4-.01(1)(a)</p> <p>Rule 335-3-4-.01(1)(b)</p>

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p>2. Except as provided for in proviso 2(a) of this section of this subpart, each process gas stream containing more than 0.10 of a grain of hydrogen sulfide (H<sub>2</sub>S) per Scf shall not be emitted into the atmosphere unless it is properly burned to maintain the ground level concentrations of hydrogen sulfide to less than twenty (20) parts per billion beyond plant property limits, averaged over a thirty (30) minute period.</p> <p>(a) Provided vessels or equipment are being de-pressured and/or emptied and the reduced pressure will not allow flow of the process gas stream to the combustion device, the venting to the atmosphere of any gas stream shall be allowed, but the duration of the venting shall not exceed 15 continuous minutes</p>	Rule 335-3-5-.03(2)
<p>3. Based on the available sulfur long tons per day (LTons/day), the sulfur dioxide emissions shall not exceed the allowable emission limit as specified in the following provisos:</p> <p>(a) There is no SO<sub>2</sub> emissions limit, if the available sulfur is less than or equal to 10 LTons/Day.</p> <p>(b) 560 Lbs/Hour {i.e. sulfur recovery efficiency ranging from =&gt; 70% to =&gt; 94%}, if the available sulfur is greater than 10 LTons/Day and is less than or equal to 50 LTons/day.</p> <p>(c) 0.10 Lbs. of SO<sub>2</sub>/Lb. of sulfur processed {i.e. sulfur recovery efficiency =&gt; 95%}, if the available sulfur is greater than 50 LTons/Day and is less than or equal to 100 LTons/day.</p> <p>(d) 0.08 Lbs. of SO<sub>2</sub>/Lb. of sulfur processed {i.e. sulfur recovery efficiency =&gt; 96%}, if the available sulfur is greater than 100 LTons/Day.</p>	Rule 335-3-5-.03(3)
<p>4. Based on the percentage of H<sub>2</sub>S in the dry acid gas stream, the allowable sulfur dioxide emission limits specified in proviso 3 of this section of this subpart shall be adjusted as follows:</p>	Rule 335-3-5-.03(3)(a)

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p>(a) Increased by 0.02 Lbs of SO<sub>2</sub>/Lb. of sulfur processed {i.e. decrease sulfur recovery efficiency by 1%}, if the H<sub>2</sub>S content in the acid gas stream is equal to or greater than 50% and less than 60%.</p> <p>(b) Increased by 0.04 Lbs of SO<sub>2</sub>/Lb. of sulfur processed { i.e. decrease sulfur recovery efficiency by 2%}, if the H<sub>2</sub>S content in the acid gas stream is greater than or equal to 40% and less than 50%.</p> <p>(c) Increased by 0.06 Lbs of SO<sub>2</sub>/Lb. of sulfur processed { i.e. decrease sulfur recovery efficiency by 3%}, if the H<sub>2</sub>S content in the acid gas stream is greater than or equal to 30% and less than 40%.</p> <p>(d) Increased by 0.10 Lbs of SO<sub>2</sub>/Lb. of sulfur processed { i.e. decrease sulfur recovery efficiency by 5%}, if the H<sub>2</sub>S content in the acid gas stream is greater than or equal to 20% and less than 30%.</p> <p>(e) Must utilize the best available control technology, with consideration to technical practicability and economic reasonableness of reducing or eliminating the emissions from the facility if the H<sub>2</sub>S content in the acid gas stream is less than 20%.</p> <p>(f) The following equation shall be used to compute the sulfur recovery efficiency:</p> <p style="padding-left: 40px;">Sulfur recovery efficiency % =</p> $\left( \frac{(\text{Sulfur Feed Rate (Lbs/Hr)}) - (\text{Sulfur Compound Emission Rate (Lbs/Hr)})}{(\text{Sulfur Feed Rate (Lbs/hr)})} \right) \times 100$ <p>(1) The sulfur feed rate, sulfur compound emission rate and the sulfur recovery efficiency shall be rounded off to one decimal place.</p> <p>(2) Sulfur feed rate means the mass rate of sulfur compounds that are removed from the sour gas feed to and by the sweetening unit and that are contained within acid gas stream(s).</p>	

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p>(3) Sulfur feed rate is inclusive of all acid gas streams that are sent to the sulfur recovery system along with those that are diverted away from and are never recycled back to the sulfur recovery system or process provided the diverted stream is not being accounted for with the SRS CEMS.</p> <p>(4) Acid gas stream means gas stream(s) (i.e. amine regeneration column(s) overhead gas stream, rich amine flash drum(s) overhead gas stream, etc.) that exit the sweetening unit which have a significantly higher sulfur and/or carbon dioxide concentration than that of the sour gas that feeds the sweetening unit.</p> <p>(5) Acid gas does not include overhead gas stream(s) exiting amine contacting column(s) (i.e. residue gas, sales gas, off speck gas, fuel gas. etc) which are located within the sweetening unit and which can not be sent to the sulfur recovery system.</p> <p>(6) Sulfur compound emission rate means the mass rate of sulfur compounds that are emitted from the sweetening unit and the sulfur recovery system.</p> <p>(7) Sulfur compound emission rate is inclusive of the sulfur recovery system thermal oxidizer effluent stack gas streams and all acid gas streams that are diverted away from and are never recycled back to the sulfur recovery system or process.</p>	
<p><i>Compliance and Performance Test Methods and Procedures</i></p> <p>1. Compliance with the opacity standards shall be met by conducting a daily visual inspection of the thermal oxidizer. Provided that visible emissions, in excess of the opacity standards, are observed during the daily inspection, a visible emission observation shall be conducted using Method 9 or Method 22 of 40 CFR 60, Appendix A.</p>	<p>Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.05</p>

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p>2. For the purpose of determining the available sulfur, an analysis, meeting the following requirements, shall be conducted to determine the H<sub>2</sub>S content of each acid gas stream:</p> <p>(a) Testing shall consist of capturing one representative sample of the stream at a frequency of no less than once each month.</p> <p>(b) The sample collected shall be analyzed utilizing the Tutwiler procedures found in §60.648 or the chromatographic analysis procedures found in ASTM E-260 or the stain tube procedures found in GPA 2377-86 or those provided by the stain tube manufacture.</p>	<p>Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.05</p>
<p style="text-align: right;">[Acid Gas H<sub>2</sub>S (Mole %) ]</p> <p>3. Provided the available sulfur is greater than 10 LTons/Day, a performance test meeting the following requirements shall be conducted to demonstrate compliance with the SO<sub>2</sub> emission allowable:</p> <p>(a) At lease once every twelve (12) months</p> <p>(b) Consist of three runs of at least 1-hour in duration each</p> <p>(1) Each run shall test for the emissions of SO<sub>2</sub> and TRS</p> <p>(2) Each run shall be conducted in accordance to the appropriate reference methods and procedures specified in proviso 3(b)(2)(i) through (x) of this section of this subpart.</p> <p>(i) 40 CFR Part 60 Appendix A, Method 1 or 1A</p> <p>(ii) 40 CFR Part 60 Appendix A, Method 2 or 2A or 2B or 2C or 2D or 2E</p> <p>(iii) 40 CFR Part 60 Appendix A, Method 3 or 3A or 3B or 3C</p> <p>(iv) 40 CFR Part 60 Appendix A, Method 4</p>	<p>Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.05</p>

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<ul style="list-style-type: none"> <li>(v) 40 CFR Part 60 Appendix A, Method 6 or 6A or 6B or 6C</li> <li>(vi) 40 CFR Part 60 Appendix A, Method 15 or 15 A or 16 or 16A or 16B</li> <li>(vii) §60.644 of 40 CFR Part 60</li> <li>(3) The pollutants tested for and the methods and procedures that are utilized may be modified upon receiving Departmental approval.</li> </ul>	
<p><i>Emission Monitoring</i></p> <ul style="list-style-type: none"> <li>1. Except during times that the production facility is not manned by operation personnel or when the thermal oxidizer is not being operated, opacity monitoring as specified in Appendix D of this permit shall be utilized for the thermal oxidizer.</li> <li>2. Compliance Assurance Monitoring (CAM) for the SRU and thermal oxidizer shall be met as specified in Appendix B of this permit.</li> <li>3. Periodic monitoring shall be met by maintaining records as specified in the <i>recordkeeping and reporting requirements</i> section of this subpart.</li> </ul>	<p>Rule 335-3-16-.05(c)(1) Rule 335-3-1-.04</p> <p>Rule 335-3-4-.01(2)</p> <p>§64.6(b) &amp; (c)</p>
<p><i>Recordkeeping and Reporting Requirements</i></p> <ul style="list-style-type: none"> <li>1. A record of the following information shall be maintained and made available for inspection: <ul style="list-style-type: none"> <li>(a) The date, starting time, and duration of each deviation or exceedance of the requirements specified in the <i>emission standards</i> section of this subpart along with the cause and corrective actions taken.</li> <li>(b) The date, time and results of each performance tests along with any other tests conducted on the SRU and thermal oxidizer that provide additional stack pollutant content data.</li> </ul> </li> </ul>	<p>Rule 335-3-16-.05(c)(2) Rule 335-3-1-.04 §64.9</p> <p>§64.9(a)(2)(i)</p>

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<ul style="list-style-type: none"> <li>(c) The date and time of each shut down and start up of the gas sweetening unit, the SRU, or the thermal oxidizer.</li> <li>(d) Date and type of maintenance that affects air emissions</li> <li>(e) Results of each daily visual inspection of the thermal oxidizer</li> <li>(f) Results of each occurrence when a visible emission observation was conducted</li> <li>(g) The three hour rolling average CMS calculations and analysis of the sulfur recovery efficiency, the sulfur dioxide emissions and the thermal oxidizer firebox temperature.</li> </ul>	
<ul style="list-style-type: none"> <li>(h) The information required by the recordkeeping section of Subparts A and §60.647.</li> </ul>	§60.7 §60.647
2. For the purpose of demonstrating compliance with proviso 21(a) of the <i>General Provisos</i> subpart of this permit, monitoring reports meeting the requirements specified in proviso 2(a) through (c) of this section of this subpart shall be submitted to the Department.	Rule 335-3-16-.05(c)(2) Rule 335-3-1-.04 Rule 335-3-16-.05(c)(3)(i)
<ul style="list-style-type: none"> <li>(a) Each report shall identify each incidence of deviation from a permit term or condition including those that occur during startups, shutdowns, and malfunctions.               <ul style="list-style-type: none"> <li>(1) A deviation shall mean any condition determined by observation, by data collected by any continuous monitoring system or periodic monitoring required by the permit that can be used to determine compliance, that identifies an affected source has failed to meet an applicable emission limit or standard or that a work practice was not complied with or completed.</li> <li>(2) If no deviation event occurred during the reporting period, a statement that indicates there were no deviations from the permit requirements shall be included in the report.</li> </ul> </li> </ul>	

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p>(b) An Excessive Emission and CMS Performance Report and Summary Report meeting the requirements specified in provisos 2(b)(1) through (3) to this section of this subpart shall be submitted to the Department.</p> <p>(1) A deviation shall consist of, but is not limited to, any period of time during which the following occurs:</p> <ul style="list-style-type: none"><li>(i) There was a failure to maintain the three hour rolling average sulfur recovery efficiency as described in the CAM plan for the SRU found in Appendix B of this permit.</li><li>(ii) There was a failure to maintain the three hour rolling average sulfur dioxide emissions at a rate that is less than or equal to the SO<sub>2</sub> allowables as specified in the <i>emission standards</i> section of this subpart of this permit.</li><li>(iii) There was a failure to maintain the three hour rolling average thermal oxidizer firebox at temperature that is equal to or greater than that required in the CAM plan for the thermal oxidizer found in Appendix B of this permit.</li><li>(iv) There was a failure of the continuous emission monitoring system to meet the requirements specified in Appendix F of 40 CFR Part 60 while the sulfur removal system remained in operation.</li></ul>	



# Quantum Resources Management-Chatom Plant

## Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations										
<p>(2) Each report shall cover a calendar quarter period and shall be submitted according to the following reporting schedule:</p> <table> <tr> <th data-bbox="331 611 544 640"><u>Reporting Period</u></th><th data-bbox="783 602 978 631"><u>Submittal Date</u></th></tr> <tr> <td data-bbox="217 647 624 676">January 1<sup>st</sup> through March 31<sup>st</sup></td><td data-bbox="823 656 943 685">April 30<sup>th</sup></td></tr> <tr> <td data-bbox="217 694 571 723">April 1<sup>st</sup> through June 30<sup>th</sup></td><td data-bbox="831 696 943 725">July 31<sup>st</sup></td></tr> <tr> <td data-bbox="217 734 628 763">July 1<sup>st</sup> through September 30<sup>th</sup></td><td data-bbox="810 741 963 770">October 31<sup>st</sup></td></tr> <tr> <td data-bbox="217 772 663 801">October 1<sup>st</sup> through December 31<sup>st</sup></td><td data-bbox="807 784 967 813">January 31<sup>st</sup></td></tr> </table> <p>(3) Except as provided for in proviso 2(d) of this section, each report shall meet the requirements specified in either §60.7(c) of 40 CFR Part 60, Subpart A.</p> <p>(c) A Periodic Monitoring Report (PMR) meeting the requirements specified in provisos 2(c)(1) through (3) of this section of this subpart shall be submitted to the Department.</p> <p>(1) A deviation shall consist of, but is not limited to, any period of time during which the following occurs:</p> <ul style="list-style-type: none"> <li>(i) There was a failure to meet the daily, quarterly and annual requirements specified in Appendix F of 40 CFR Part 60.</li> <li>(ii) There was a failure to maintain the 6-minute average opacity at a value less than 20% for no more than one 6-minute period when utilizing Method 9.</li> <li>(iii) There was a failure to maintain the 6-minute averaging opacity at a value less than 40% during any 6-minute period when utilizing Method 9.</li> </ul>	<u>Reporting Period</u>	<u>Submittal Date</u>	January 1 <sup>st</sup> through March 31 <sup>st</sup>	April 30 <sup>th</sup>	April 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>	July 1 <sup>st</sup> through September 30 <sup>th</sup>	October 31 <sup>st</sup>	October 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>	
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October 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>										

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations
<p>(iv) There was a failure to maintain the accumulated minutes in which visible emissions were observed at a value less than 12 minutes when utilizing Method 22.</p> <p>(v) There was a failure to meet the requirements of the <i>compliance and performance test methods and procedures</i> section of this subpart.</p> <p>(vi) There was a failure to meet the requirements of the <i>emission monitoring</i> section of this subpart.</p> <p>(vii) There was a failure to meet the requirements of the <i>recordkeeping and reporting requirements</i> section of this subpart.</p> <p>(2) Except as provided for in proviso 2(d) of this section, the report shall meet the requirements specified in proviso 2(c)(2)(i).</p> <p>(i) For each deviation event, the following information shall be submitted:</p> <ul style="list-style-type: none"> <li>(I) Emission source description</li> <li>(II) Permit requirement</li> <li>(III) Date</li> <li>(IV) Starting time</li> <li>(V) Duration</li> <li>(VI) Actual quantity of pollutant or parameter</li> <li>(VII) Cause</li> </ul>	

## Quantum Resources Management-Chatom Plant

### Provisos for SRU & Thermal Oxidizer

Federally Enforceable Provisos	Regulations						
<p>(VIII) Actions taken to return to normal operating conditions</p> <p>(IX) Total operating hours of the affected source during the reporting period</p> <p>(X) Total hours of deviation events during the reporting period</p> <p>(XI) Total hours of deviation events that occurred during start ups, shut downs, and malfunctions during the reporting period</p> <p>(3) Each PMR shall cover no more than a calendar semi-annual period and shall be submitted according to the following reporting schedule:</p> <table style="margin-left: 40px;"> <tr> <td style="text-align: center;"><u>Reporting Period</u></td><td style="text-align: center;"><u>Submittal Date</u></td></tr> <tr> <td>January 1<sup>st</sup> through June 30<sup>th</sup></td><td>July 31<sup>st</sup></td></tr> <tr> <td>July 1<sup>st</sup> through December 31<sup>st</sup></td><td>January 31<sup>st</sup></td></tr> </table> <p>(d) The report content and format in proviso 2(b) and 2(c) of this section may be modified upon receipt of Departmental approval.</p>	<u>Reporting Period</u>	<u>Submittal Date</u>	January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>	July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>	
<u>Reporting Period</u>	<u>Submittal Date</u>						
January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>						
July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>						
<p>3. Each deviation from the requirements specified in this subpart that occurs during start ups, shut downs, and malfunctions, shall be reported to the Department in a manner that complies with proviso 15(b) and 21(b) of the <i>General Provisos</i> subpart of this permit.</p>	<p>Rule 335-3-16-.05(c)(3)(ii)</p>						

# Quantum Resources Management-Chatom Plant

## Summary Page for Emergency Flare

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8760 Hours/Year

### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
Flare No. 1	Facility Emergency Flare	H <sub>2</sub> S	Burn gas with 0.10 grains of H <sub>2</sub> S/scf	Rule 335-3-5-.03(1)
			20 ppbv offsite	Rule 335-3-5-.03(2)
	Available Sulfur ≤ 10 LTons/Day	SO <sub>2</sub>	Unlimited	Rule 335-3-5-.03(3)
		Opacity	Smokeless	40 CFR 60.18(c)(1)

# Quantum Resources Management-Chatom Plant

## Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<i>Applicability</i>	
1. The Chatom Plant shall be subject to the requirements of ADEM Admin. Code R. 335-3-5-.03, " <i>Petroleum Production</i> " and this subpart of this permit. The facility handles gas or refinery gas that contains more than 0.10 grains of hydrogen (H <sub>2</sub> S) per standard cubic foot (Scf). The flare would be used to comply with this regulation.	Rule 335-3-5-.03(1)
2. The flare shall be subject to the requirements of ADEM Admin. Code R. 335-3-16, " <i>Major Source Operating Permits</i> " and in this subpart of this permit.	Rule 335-3-16-.03
3. The flare shall be used to comply with 40 CFR 60 Subpart KKK " <i>Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants</i> " in that it would combust captured emissions from sources subject to these regulations. The flare shall meet the requirements specified in 40 CFR 60.18.	§60.18(b) §60.633(f)
4. The flare shall be subject to the requirements specified in 40 CFR Part 64, " <i>Compliance Assurance Monitoring</i> " as indicated in proviso 33 of the General Permit Provisos subpart and in this subpart of this permit.	40 CFR §64
<i>Emission Standards</i>	
1. Provided available sulfur is equal to or less than 10 long tons per day, there is no limit on sulfur dioxide emissions. A record of SO <sub>2</sub> emissions shall be kept for reporting purposes.	Rule 335-3-16-.05(a) Rule 335-3-5-.03(3)
2. All process gas streams containing 0.10 of a grain of hydrogen sulfide per Scf shall be burned to the extent that the ground level concentrations of hydrogen sulfide shall be less than twenty (20) parts per billion beyond plant property limits, averaged over a thirty (30) minute period.	Rule 335-3-5-.03(2)

## Quantum Resources Management-Chatom Plant

### Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<p>(a) Provided vessels or equipment are being de-pressured and/or emptied and the reduced pressure will not allow flow of the process gas stream to the combustion device, the venting to the atmosphere of any gas stream shall be allowed, but the duration of the venting shall not exceed 15 continuous minutes</p>	
<p>3. The flare used to comply with 40 CFR 60 Subpart KKK, shall meet the following requirements:</p>	<p>§60.18(c)(1) §60.482-10(d)</p>
<p>(a) Shall be designed for and operated with no visible emissions, except for a 5-minute period during any consecutive 2-hour period</p>	<p>§60.18 (c)(1)</p>
<p>(1) Method 22 of Subpart 60 Appendix A shall be used to determine compliance with this requirement</p>	<p>§60.18 (f)(1)</p>
<p>(2) The observation period is 2 hours and shall be used according to Method 22</p>	
<p>(b) Shall be operated with a flame present at all times as determined by 40 CFR §60.18(f)</p>	<p>§60.18 (c)(2)</p>
<p>(1) The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.</p>	<p>§60.18 (f)(2)</p>
<p>(c) Shall be steam-assisted, air-assisted, or non-assisted</p>	<p>§60.18 (c)(6)</p>
<p>(d) Shall adhere to either the heat content specifications found in §60.18 (c)(3)(ii) and the maximum tip velocity specifications in 60.18 (c)(4) or adhere to the requirements of §60.18 (c)(3)(i)</p>	<p>§60.18 (c)(3)</p>
<p>(1) The net heating value of gas being combusted in a flare would be determined as specified in 40 CFR §60.18 (f)(3)</p>	
<p>(2) The actual exit velocity of the flare would be determined as specified in 40 CFR §60.18 (f)(4)</p>	

# Quantum Resources Management-Chatom Plant

## Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
(3) The maximum permitted velocity for steam-assisted and nonassisted flares would be determined as specified in 40 CFR §60.18 (f)(5)	
(4) The maximum permitted velocity for air assisted flares would be determined as specified in 40 CFR §60.18 (f)(6)	
(e) Shall be monitored to ensure that they are operated and maintained in conformance with their designs	§60.18 (d)
(f) Shall be operated at all times when emissions may be vented to them	§60.18 (e)
<i>Compliance and Performance Test Methods and Procedures</i>	Rule 335-3-16-.05(c)(1)(i) Rule 335-3-1-.05
1. For the purpose of demonstrating compliance with provisos 1 and 2 of the <i>emission standards</i> section of this subpart, each process stream that can be sent to the flare shall be tested in accordance to the requirements specified in proviso 1(a) and (b) of this section of this subpart.	
(a) The H <sub>2</sub> S content of each process stream shall be determined in accordance to the following requirements:	
(1) Testing shall consist of capturing one representative sample of the stream at a frequency of no less than once each four month.	
(2) The sample collected shall be analyzed utilizing the Tutwiler procedures found in §60.648 or the chromatographic analysis procedures found in ASTM E-260 or the stain tube procedures found in GPA 2377-86 or those provided by the stain tube manufacture.	
[ H <sub>2</sub> S Content (Mole %) ]	

# Quantum Resources Management-Chatom Plant

## Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<p>(b) The volatile organic compound (VOC) weight percent and BTU content and molecular weight of each process stream shall be determined in accordance to the following requirements:</p> <p>(1) A representative sample of the stream shall be captured and analyzed at a frequency of no less than once each twelve (12) months.</p> <p>(2) The sample collected shall be analyzed utilizing ASTM Analysis Method D1826-77, chromatographic analysis procedures found in 40 CFR Part 60 Appendix A, Method 18 or equivalent methods and procedures.</p> <p style="text-align: right;">[ Molecular Weight (Mole Wt) ] [ VOC Content (Wt %) ] [ Heat Content (BTU/Scf ) ]</p> <p>(c) Provided multiple process streams can be sent to the flare and it is possible to capture a common stream whose contents would be representative of all the streams, that common stream may be used instead of the individual process streams.</p> <p>(d) The frequency of this testing may be modified upon receipt of Department approval.</p>	<p>Rule 335-3-16-.05(c)(1) Rule 335-3-1-.04</p>
<i>Emission Monitoring</i>	
<p>1. Periodic Monitoring and Compliance Assurance Monitoring (CAM) for the emergency flare shall be met by meeting the requirements found in Appendix C of this permit.</p>	§64.6(b) & (c)
<p>2. Periodic monitoring meeting the requirements specified in proviso 1 of the <i>recordkeeping and reporting requirements</i> section of this subpart shall be utilized.</p>	Rule 335-3-16-.05(c)(1)(ii)



# Quantum Resources Management-Chatom Plant

## Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<p>3. Except during times that the emergency flare is shut down, opacity monitoring shall be met by undertaking daily visible emission observations of the flare as outlined in Appendix E of this permit.</p>	Rule 335-3-4-.01(2)
<p><i>Record Keeping and Reporting Requirements</i></p>	Rule 335-3-16-.05(c)(2) Rule 335-3-1-.04 §64.9
<p>1. For the purpose of demonstrating compliance with the <i>emission standards</i> section of this subpart, a monthly record of the following information shall be maintained and made available for inspection:</p> <p>(a) Volume of gas burned in flare = [Volume Burned (MScf/Month) ]</p> <p>(b) Stream Heat Input (MMBTU/Month) = [Volume Burned (MScf/Month) ] X [ 10<sup>3</sup> Scf/1 MScf ] X [ Heat Content (BTU/Scf) ] X [ 1 MMBTU/10<sup>6</sup> BTU ]</p> <p>(c) Stream H<sub>2</sub>S feed rate (Lbs/Month) = [Volume Burned (MScf/Month) ] X [ 10<sup>3</sup> Scf/MScf ] X [ 1 lb-mol/380 Scf ] X [ {H<sub>2</sub>S Content (Mole %)} / {100} ] X [ 34 Lbs. H<sub>2</sub>S/lb-mol H<sub>2</sub>S ]</p> <p>(d) Flare H<sub>2</sub>S feed rate (Lbs/Month) = Σ of Stream H<sub>2</sub>S feed rate (Lbs/Month)</p> <p>(e) Number of hours that the flare was operated during the month = [ Flare Hrs (Hours/Month) ]</p> <p>(f) H<sub>2</sub>S feed rate (Lbs/Hour) = <math display="block">\frac{\text{Flare H}_2\text{S feed rate (Lbs/Month)}}{\text{Flare Hrs (Hours/Month)}}</math></p>	

# Quantum Resources Management-Chatom Plant

## Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<p>(g) Flare SO<sub>2</sub> Emissions (Lbs/Month) =</p> $\frac{[\text{Flare H}_2\text{S feed rate (Lbs/Month)}] \times [64 \text{ Lbs of SO}_2 / \text{lb-mol}] \times [0.98]}{[34 \text{ Lbs H}_2\text{S/lb-mol}]}$ <p><i>This equation assumes a 98% destruction efficiency for the flare</i></p> <p>(h) Flare Heat Input (MMBTU/Month) =</p> $\Sigma \text{ of Stream Heat Input (MMBTU/Month)}$ <p>(i) The date, starting time, and duration of each deviation or exceedance of the requirements specified in the <i>emission standards</i> section of this subpart along with the cause and corrective actions taken.</p> <p>(j) Record of the results of each daily visible emission observation conducted on the flare</p> <p>(k) The date, starting time, and duration of each time the H<sub>2</sub>S feed rate exceeds 2,440 lb/hr over a one hour averaging period, along with the cause and corrective actions taken. This exceedance is defined as a deviation.</p> <p>(l) Records of all periods of operation during which the flare pilot flame was absent when a visual inspection of the flare was conducted</p> <p>2. For the purpose of demonstrating compliance with proviso 21(a) of the <i>General Provisos</i> subpart of this permit, a monitoring report meeting the requirements specified in proviso 2(a) and 2(b) of this section of this subpart shall be submitted to the Department.</p> <p>(a) Each report shall identify each incidence of deviation from a permit term or condition including those that occur during startups, shutdowns, and malfunctions.</p>	<p>Rule 335-3-16-.05(c)(3)(i)</p>

## Quantum Resources Management-Chatom Plant

### Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<p>(1) A deviation shall mean any condition determined by observation, by data collected by any continuous monitoring system or periodic monitoring required by the permit that can be used to determine compliance, that identifies an affected source has failed to meet an applicable emission limit or standard or that a work practice was not complied with or completed.</p> <p>(2) If no deviation event occurred during the reporting period, a statement that indicates there were no deviations from the permit requirements shall be included in the report.</p> <p>(b) A Periodic Monitoring Report meeting the requirements specified in the following provisos shall be submitted to the Department:</p> <p>(1) A deviation shall consist, but is not limited to, any period of time during which the following occurs:</p> <p>(i) A visual observation indicated there was no flame present at the flare tip when a process gas stream could have been sent to it.</p> <p>(ii) The duration of the venting to the atmosphere of a process gas stream lasted more than 15 minutes.</p> <p>(iii) The feed rate of hydrogen sulfide to the flare exceeded 2,440 lb/hr over a one hour averaging period.</p> <p>(iv) The air quality modeling study indicated offsite hydrogen sulfide concentrations average over a 30 minute period exceeded 20 ppbv.</p> <p>(v) Visible emissions were observed for more than 5 minutes during any consecutive 2-hour period for the facility flare.</p>	

## Quantum Resources Management-Chatom Plant

### Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations
<p>(vi) There was a failure to maintain the accumulated minutes in which visible emissions were observed when using Method 22.</p> <p>(vii) Immediate corrective measures were not undertaken when visible emissions were observed for a period of 5 minutes, or greater, during any consecutive 2-hour period.</p> <p>(viii) The requirements specified in the <i>compliance and performance test methods and procedures</i> section of this subpart were not complied with.</p> <p>(ix) The requirements specified in the <i>emission monitoring</i> section of this subpart were not complied with.</p> <p>(x) The requirements specified in the <i>recordkeeping and reporting requirements</i> section of this subpart were not complied with.</p> <p>(2) Except as provided for in proviso 2(c) of this section, the report shall meet the requirements specified in proviso 2(b)(2)(i).</p> <p>(i) For each deviation event, the following information shall be submitted.</p> <p style="padding-left: 40px;">(I) Emission source description</p> <p style="padding-left: 40px;">(II) Permit requirement</p> <p style="padding-left: 40px;">(III) Date</p> <p style="padding-left: 40px;">(IV) Starting time</p> <p style="padding-left: 40px;">(V) Duration</p>	

## Quantum Resources Management-Chatom Plant

### Provisos for Emergency Flare

Federally Enforceable Provisos	Regulations						
<p>(VI) Actual quantity</p> <p>(VII) Cause</p> <p>(VIII) Action taken to return to compliance</p> <p>(IX) Total operating hours of the affected source during the reporting period</p> <p>(X) Total hours of deviation events during the reporting period</p> <p>(XI) Total hours of deviation events that occurred during start ups, shut downs, and malfunctions during the reporting period</p> <p>(3) Each PMR shall cover no more than a calendar semi-annual period and shall be submitted according to the following reporting schedule:</p> <p>(4)</p> <table style="margin-left: 40px;"> <tr> <th style="text-align: left;"><u>Reporting Period</u></th><th style="text-align: left;"><u>Submittal Date</u></th></tr> <tr> <td>January 1<sup>st</sup> through June 30<sup>th</sup></td><td>July 31<sup>st</sup></td></tr> <tr> <td>July 1<sup>st</sup> through December 31<sup>st</sup></td><td>January 31<sup>st</sup></td></tr> </table> <p>(c) The report content and format in proviso 2(b) of this section may be modified upon receipt of Departmental approval.</p>	<u>Reporting Period</u>	<u>Submittal Date</u>	January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>	July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>	
<u>Reporting Period</u>	<u>Submittal Date</u>						
January 1 <sup>st</sup> through June 30 <sup>th</sup>	July 31 <sup>st</sup>						
July 1 <sup>st</sup> through December 31 <sup>st</sup>	January 31 <sup>st</sup>						
<p>3. Each deviation from the requirements specified in the <i>emission standards</i> section of this subpart, including those that occur during start ups, shut downs, and malfunctions, shall be reported to the Department in a manner that complies with proviso 15(b) and 21(b) of the general proviso subpart of this permit.</p>	<p>Rule 335-3-16-.05(c)(3)(ii)</p>						

## Quantum Resources Management-Chatom Plant

### Summary Page for VOC Equipment Leaks from Natural Gas Processing Plants

**Permitted Operating Schedule:** 24 Hours/Day x 365 Days/Year = 8760 Hours/Year

#### Emission limitations:

Emission Point #	Description	Pollutant	Emission Limit	Regulation
FUGITIVE	All affected facilities located at an onshore natural gas processing plant	Fugitive VOC	LDAR work practices	Rule 335-10-.02(63) 40 CFR Part 60, Subpart KKK

#### Affected facility within process unit:

Compressors, except reciprocating compressors, in VOC service or wet gas service

Group of all equipment within a process unit:

- Each valve
- Each pump
- Each pressure relief device
- Each sampling connection system
- Each open-ended valve or line
- Each flange or other connector

- Each glycol dehydration unit
- Each sweetening unit
- Liquefied natural gas unit

#### Process units :

- Inlet gathering & separation unit
- Condensate stabilization unit
- Gas sweetening unit

## Quantum Resources Management-Chatom Plant

### Provisos for VOC Equipment Leaks from Onshore Natural Gas Processing Plants

Federally Enforceable Provisos	Regulations
<i>Applicability</i>	
1. Except as specified in 40 CFR §60.630(d), affected facilities at onshore natural gas processing plants that commences construction, reconstruction, or modification after January 20, 1984 are subject to the requirements found in 40 CFR 60, Subpart KKK “Standards of Performance for Equipment Leaks of VOC from Onshore Natural Gas Processing Plants”. Affected facilities under this subpart are as follows:	Rule 335-3-10-.02(63) & §60.630(a)(1)
(a) Each compressor in VOC service or in wet gas service, except reciprocating compressors in wet gas service	§60. 630(a)(2) §60. 633(f)
(b) The group of all equipment within a process unit in VOC service or in wet gas service as specified in proviso 1(b)(1) through (5).	§60. 630(a)(3)
(1) Each pump	
(2) Each pressure relief device	
(3) Each open-ended valve or line	
(4) Each valve	
(5) Each flange or other connector	
(c) A compressor station, dehydration unit, sweetening unit, underground storage tanks, field gas gathering system, or liquefied natural gas units located at the Chatom Plant would also be covered under 40 CFR 60, Subpart KKK.	§60. 630(e)
<i>Emissions Standards</i>	
1. The emission standards as specified in either 1(a) or 1(b) shall be met to demonstrate compliance with this subpart.	§60.632(a) §60.482-1(a) §60.480(e)

## Quantum Resources Management-Chatom Plant

### Provisos for VOC Equipment Leaks from Onshore Natural Gas Processing Plants

Federally Enforceable Provisos	Regulations
<p>(a) Except as specified in §60.633 of 40 CFR 60 Subpart KKK, each affected facility shall comply with the emission standards specified in the following provisos:</p> <p>(1) Pumps in light liquid service shall comply with §60.482-2 of 40 CFR 60, Subpart VV, except as specified in §60.633(d) and (e) of 40 CFR 60, Subpart KKK.</p> <p>(2) Compressors shall comply with §60.482-3 of 40 CFR 60, Subpart VV, except as specified in §60.633(f) of 40 CFR 60, Subpart KKK.</p> <p>(3) Pressure relief devices in gas/vapor service shall comply with §60.482-4 of 40 CFR 60, Subpart VV, except as specified in §60.633 (b), (d), and (e) of 40 CFR 60, Subpart KKK.</p> <p>(4) Sampling connection systems under 40 CFR 60, Subpart KKK are exempt from the requirements of §60.482-5 of 40 CFR 60, Subpart VV.</p> <p>(5) Open-ended valves or lines shall comply with §60.482-6 of 40 CFR 60, Subpart VV.</p> <p>(6) Valves in gas/vapor service and in light liquid service shall comply with 60.482-7 of 40 CFR 60, Subpart VV, except as specified in §60.633(d) and (e) of 40 CFR 60, Subpart KKK.</p> <p>(7) Pumps and valves in heavy liquid service, pressure relief devices in light liquid or heavy liquid service, and connectors shall comply with §60.482-8 of 40 CFR 60, Subpart VV.</p>	<p>§60.482-1(a) §60.482-2 §60.633(d) &amp; (e)</p> <p>§60.482-1(a) §60.482-3 §60.633(f)</p> <p>§60.482-1(a) §60.482-4 §60.633(b), (d), &amp; (e)</p> <p>§60.633(c)</p> <p>§60.482-1(a) §60.482-6</p> <p>§60.482-1(a) §60.482-7 §60.633(d) &amp; (e)</p> <p>§60.482-1(a) §60.482-8</p>



## Quantum Resources Management-Chatom Plant

### Provisos for VOC Equipment Leaks from Onshore Natural Gas Processing Plants

Federally Enforceable Provisos	Regulations
(8) Delay of repair shall comply with §60.482-9 of 40 CFR 60, Subpart VV.	§60.482-1(a) §60.482-9
(9) Closed vent systems and control devices shall comply with §60.482-10 of 40 CFR 60, Subpart VV.	§60.482-1(a) §60.482-10
(i) Provided a flare is utilized to meet any of the above requirements, the flare shall comply with the requirements specified in §60.18 of 40 CFR Part 60, Subpart A.	§60.633(g)
(b) As an alternative means of compliance, the provisions of 40 CFR 65, Subpart F may be complied with to satisfy the requirement of §60.482 through §60.487 of Subpart VV for an affected facility.	§60.480(e) §60.482-1(a)
2. Equipment that is in vacuum service is excluded from the requirements of §60.482-2 through §60.482-10 of 40 CFR 60, Subpart VV if it meets the requirements of §60.486(e)(5) of 40 CFR 60, Subpart VV.	§60.632(a) §60.482-1(d) §60.486(e)(5)
3. An owner or operator may elect to comply with the alternative standards for valves specified in §60.483-1 or 60.483-2 of 40 CFR 60, Subpart VV.	§60.632(b)
4. An owner or operator may apply for permission to use an alternative means of emission limitations as specified in §60.634 of 40 CFR 60, Subpart KKK to satisfy the requirements of §60.482 through §60.487 of 40 CFR 60, Subpart VV for an affected facility.	§60.632(c) §60.634
<i>Compliance and Performance Test Methods and Procedures</i>	
1. Compliance with §60.482-1 to §60.482-10 of 40 CFR Part 60, Subpart VV shall be determined by the review of records and reports, review of performance test results, and inspection using the methods and procedures specified in §60.485 of 40 CFR 60, Subpart VV.	§60.632(d) §60.482-1(b) §60.485

## Quantum Resources Management-Chatom Plant

### Provisos for VOC Equipment Leaks from Onshore Natural Gas Processing Plants

Federally Enforceable Provisos	Regulations
<i>Emission Monitoring</i>	
1. The inspection and monitoring requirements specified in §60.482-1 through §60.482-10 of 40 CFR Part 60, Subpart VV and either §60.483-1 or §60.483-2 of 40 CFR Part 60, Subpart VV shall be complied with.	§60.632(a) & (b)
<i>Recordkeeping and Reporting Requirements</i>	
1. Recordkeeping and reporting requirements specified in §60.7 and §60.19 of 40 CFR Part 60, Subpart A and §60.486 and §60.487 of 40 CFR Part 60, Subpart VV shall be maintained, except as provided for in §60.633, §60.635 and §60.636 of 40 CFR Part 60, Subpart KKK.	Rule 335-3-10-.02(63)  §60.7 §60.19 §60.632(e) §60.486 §60.487
2. A Leak Detection and Repair (LDAR) summary report shall be submitted to the Department:	§60.636(c) §60.487(c)
(a) The report shall include the requirements specified in §60.636(c) and a summary of the recordkeeping requirements found in §60.486 as specified in §60.487(c).	
(b) The report shall cover a calendar semi-annual period and shall be submitted to the Department on the following reporting schedule:	
<u>Reporting Period</u> <i>January 1<sup>st</sup> through June 30<sup>th</sup></i> <i>July 1<sup>st</sup> through December 31<sup>st</sup></i>	<u>Submittal Date</u> <i>July 31<sup>st</sup></i> <i>January 31<sup>st</sup></i>

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### **Appendix A: 750 BHP Inlet Compressor Engine Monitoring**

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## Quantum Resources Management-Chatom Plant

### *Each 750 BHP Inlet Compressor Engine*

Monitoring approach:	Periodic Monitoring	Periodic Monitoring—Choose at least one:		
<b>I. Indicator</b>  A. Measurement approach	<b>Calculate pollutant emissions according to proviso 1 of the recordkeeping &amp; reporting section</b>  Fuel gas volume shall be monitored with a system capable of measuring and recording the flow rate and/or the parameters utilized for flow rate calculation.  BTU content of fuel gas stream shall be determined semi-annually or as set by the Department.  Pollutant emission factors shall be determined during performance and periodic tests.	<b>Pressure drop across the catalyst bed</b>  Pressure differential will be obtained by observing and recording the pressure immediately upstream and downstream of the catalyst bed.	<b>Temperature drop across the catalyst bed</b>  Temperature differential will be obtained by observing and recording the temperature immediately upstream and downstream of the catalyst bed.	<b>NO<sub>x</sub> concentrations in the exhaust gas</b>  NO <sub>x</sub> concentrations will be obtained by using a portable monitor to analyze the gases downstream of the catalytic converter.
<b>II. Indicator range</b>	<b>NO<sub>x</sub> emissions shall be maintained at ≤ 2.48 Lbs/Hr (for all engines)</b> <b>VOC emissions shall be maintained at ≤ 1.65 Lbs/Hr (for Engine Nos. 1 &amp; 2)</b>  A deviation is defined as anytime the calculated emission rate exceeds the respective allowed emission rates.  A deviation triggers an immediate inspection, corrective action, and reporting within 48 hours or two work days.	<b>Pressure differential shall not exceed the manufacturer's maximum recommended pressure differential that indicates sufficient catalyst performance.</b>  A deviation is defined as anytime the pressure differential exceeds the recommended pressure differential.  A deviation triggers an immediate inspection, corrective action, and reporting within 48 hours or two work days.	<b>Temperature differential shall not exceed the manufacturer's maximum recommended temperature differential that indicates sufficient catalyst performance.</b>  A deviation is defined as anytime the temperature differential exceeds the recommended temperature differential.  A deviation triggers an immediate inspection, corrective action, and reporting within 48 hours or two work days.	<b>NO<sub>x</sub> concentrations in the catalytic converter exhaust gas shall not exceed the NO<sub>x</sub> concentrations from the latest performance test.</b>  A deviation is defined as anytime the NO <sub>x</sub> concentration exceeds the concentration from the latest performance test.  A deviation triggers an immediate inspection, corrective action, and reporting within 48 hours or two work days.

## Quantum Resources Management-Chatom Plant

### *Each 750 BHP Inlet Compressor Engine*

Monitoring approach:	<i>Periodic Monitoring</i>	<i>Periodic Monitoring—Choose at least one:</i>		
A QIP threshold	Not applicable	Not applicable	Not applicable	Not applicable
<b>III. Performance criteria</b>				
A. Data representiveness	<p>Fuel gas volume monitor shall be located immediately upstream of the engine.</p> <p>Fuel gas BTU content shall be determined from samples that are representative of the fuel gas being consumed.</p> <p>Performance tests shall be undertaken while engine is being operated at normal loads.</p> <p>Periodic tests shall be undertaken while engine is being operated at normal loads.</p>	<p>Pressure monitors shall be placed upstream and downstream of the catalyst bed.</p>	<p>Temperature monitors shall be placed upstream and downstream of the catalyst bed.</p>	<p>The portable monitor calibration gas used shall have concentrations that are:</p> <p>Greater than or equal to 150% of, AND Less than or equal to 10% of, AND Approximately equal to, the concentrations obtained from the last performance test.</p> <p>The portable monitor must be capable of less than 5% error when compared to the calibration gases.</p>

## Quantum Resources Management-Chatom Plant

### *Each 750 BHP Inlet Compressor Engine*

Monitoring approach:	Periodic Monitoring	Periodic Monitoring —Choose at least one:		
B. Verification of operational status	Not applicable	Not applicable	Not applicable	Not applicable
C. QA/QC practices & criteria	Not applicable	The pressure monitors shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide adequate assurance that the device is calibrated accurately, or at least annually whichever is more frequent.	The temperature monitors shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide adequate assurance that the device is calibrated accurately, or at least annually whichever is more frequent.	Should the portable monitor exceed the 5% error margin, it shall be taken out of service until it is either repaired, replaced, or passes a new calibration test.
D. Monitoring frequency	Fuel gas volume measured continuously  Fuel gas BTU content shall be determined semi-annually, or as set by the Department.  Performance tests shall be undertaken once every five years.  Periodic tests shall be undertaken once every year.	Pressure differential shall be monitored weekly.  Performance tests shall be undertaken once every five years.  Periodic tests shall be undertaken once every year.	Temperature differential shall be monitored weekly.  Performance tests shall be undertaken once every five years.  Periodic tests shall be undertaken once every year.	NO <sub>x</sub> concentrations shall be monitored weekly.  Performance tests shall be undertaken once every five years.  Periodic tests shall be undertaken once every year.
Data collection procedure	Calculate: Monthly  Pollutant emissions while utilizing the fuel volume, BTU content, emission factor and operating hours Fuel gas volume consumed			

## Quantum Resources Management-Chatom Plant

### ***Each 750 BHP Inlet Compressor Engine***

<b>Monitoring approach:</b>	<i>Periodic Monitoring</i>	<i>Periodic Monitoring —Choose at least one:</i>		
	Record: Monthly  Fuel gas volume consumed  Hours of operation.  Pollutant emissions	Record: Weekly  Pressure differential	Record: Weekly  Temperature differential	Record: Weekly  NO <sub>x</sub> Concentration
	Record: Each occurrence  Fuel gas BTU content determination  Time, date and results of each inspection and corrective actions taken	Record: Each occurrence  Time, date and results of each inspection and corrective actions taken	Record: Each occurrence  Time, date and results of each inspection and corrective actions taken	Record: Each occurrence  Time, date and results of each inspection and corrective actions taken
Averaging period	Monthly	Not applicable	Not applicable	Not applicable



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### **Appendix B: SRU & Thermal Oxidizer Monitoring**

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## Quantum Resources Management-Chatom Plant

### SRU & Thermal Oxidizer

<b>Monitoring approach:</b>	<i>Sulfur Recovery Unit Compliance Assurance Monitoring (CAM)</i>	<i>Thermal Oxidizer Compliance Assurance Monitoring (CAM)</i>
<b>I. Indicator</b>	<b>Sulfur recovery efficiency &amp; Sulfur dioxide emission rate</b>	<b>Thermal Oxidizer firebox temperature</b>
A. Measurement approach	<p>Inlet feed volume and sulfur content shall be monitored with a system capable of continuously measuring and recording the flow rate and/or the parameters utilized for flow rate calculation along with its sulfur content.</p> <p>Bypass volume shall be monitored with a system capable of continuously measuring and recording the flow rate and/or the parameters utilized for flow rate calculation through a valve.</p> <p>Sulfur content of each bypass stream shall be determined monthly, or as set by the Department.</p> <p>Effluent volume and sulfur content shall be monitored with a system capable of continuously measuring and recording the flow rate and/or the parameters utilized for flow rate calculation along with its sulfur dioxide content.</p> <p>A continuous emissions monitoring system that is capable of assimilating the above information, analyzing that information and making appropriate calculations for each monitoring cycle and each rolling three hour period while recording relevant information and calculation results shall be utilized.</p> <p>Each three hour rolling average calculation shall consist of either:</p> <ol style="list-style-type: none"> <li>1. The calculation of numerically averaged parameters for each rolling three hour period while utilizing the appropriate average parameter in calculating a flow rate, a mass rate and a recovery efficiency for that rolling three hour period.</li> </ol> <p><u>OR</u></p> <ol style="list-style-type: none"> <li>2. The calculation of a flow rate, mass rate and recovery efficiency for each continuous emissions monitoring system cycle that occurred during the rolling three hour period while calculating a numerically averaged flow rate, mass rate and recovery efficiency for that rolling</li> </ol>	<p>Firebox temperature shall be monitored with a thermocouple or equivalent device.</p> <p>A continuous emissions monitoring system that is capable of assimilating the above information, analyzing that information and making appropriate calculations for each monitoring cycle and each rolling three hour period while recording relevant information and calculation results shall be utilized.</p> <p>Each three hour rolling average calculation shall consist of :</p> <p>The calculation of a numerically averaged temperature for each rolling three hour period.</p>

## Quantum Resources Management-Chatom Plant

### SRU & Thermal Oxidizer

Monitoring approach:	Sulfur Recovery Unit Compliance Assurance Monitoring (CAM)	Thermal Oxidizer Compliance Assurance Monitoring (CAM)
<p>three hour period. <u>OR</u> 3. Any approved combination of the above two methods and procedures for making averaged calculations.</p> <p><b>II. Indicator range</b></p> <p><b>SO<sub>2</sub> emissions or sulfur recover efficiency shall be maintained</b></p> <p><b>@ Unlimited Lbs of SO<sub>2</sub>/Hr</b> If available sulfur is &lt; 10 LTons/Day</p> <p><b>@ 560 Lbs of SO<sub>2</sub>/Hr plus adjustment</b> ( i.e. sulfur recovery efficiency ranging from =&gt; 70% to 94% minus adjustment) If available sulfur is = &gt; 10 LTons/Day &amp; &lt; 50 LTons/Day</p> <p><b>@ 0.1 Lbs of SO<sub>2</sub>/Lb of sulfur processed plus adjustment</b> ( i.e. sulfur recovery efficiency =&gt; 95% minus adjustment ) If available sulfur is = &gt; 50 LTons/Day &amp; &lt; 100 LTons/Day</p> <p><b>@ 0.08 Lbs of SO<sub>2</sub>/Lb of sulfur processed plus adjustment</b> ( i.e. sulfur recovery efficiency =&gt; 96% minus adjustment ) If available sulfur is = &gt; 100 LTons/Day</p> <p>A deviation is defined as anytime the three hour rolling average SO<sub>2</sub> rate is greater than the value calculated while utilizing the above equations or the three hour rolling average sulfur recovery efficiency is less than the value calculated while utilizing the above equations.</p> <p>A deviation triggers an immediate inspection and corrective actions that meet the requirements of 40 CFR Part 64.7(d) and reporting within 48 hours or two work days.</p> <p>A QIP threshold</p>	<p>three hour period. <u>OR</u> 3. Any approved combination of the above two methods and procedures for making averaged calculations.</p> <p><b>SO<sub>2</sub> emissions or sulfur recover efficiency shall be maintained</b></p> <p><b>@ Unlimited Lbs of SO<sub>2</sub>/Hr</b> If available sulfur is &lt; 10 LTons/Day</p> <p><b>@ 560 Lbs of SO<sub>2</sub>/Hr plus adjustment</b> ( i.e. sulfur recovery efficiency ranging from =&gt; 70% to 94% minus adjustment) If available sulfur is = &gt; 10 LTons/Day &amp; &lt; 50 LTons/Day</p> <p><b>@ 0.1 Lbs of SO<sub>2</sub>/Lb of sulfur processed plus adjustment</b> ( i.e. sulfur recovery efficiency =&gt; 95% minus adjustment ) If available sulfur is = &gt; 50 LTons/Day &amp; &lt; 100 LTons/Day</p> <p><b>@ 0.08 Lbs of SO<sub>2</sub>/Lb of sulfur processed plus adjustment</b> ( i.e. sulfur recovery efficiency =&gt; 96% minus adjustment ) If available sulfur is = &gt; 100 LTons/Day</p> <p>A deviation is defined as anytime the three hour rolling average SO<sub>2</sub> rate is greater than the value calculated while utilizing the above equations or the three hour rolling average sulfur recovery efficiency is less than the value calculated while utilizing the above equations.</p> <p>A deviation triggers an immediate inspection and corrective actions that meet the requirements of 40 CFR Part 64.7(d) and reporting within 48 hours or two work days.</p> <p>If the accumulated hours of deviation events occurring exceeds 2% of the sulfur recovery system operating time during any</p>	<p>three hour period. <u>OR</u> 3. Any approved combination of the above two methods and procedures for making averaged calculations.</p> <p><b>Firebox temperature shall be maintained at ≥ the firebox temperature utilized during the latest stack test.</b></p> <p>A deviation is defined as anytime the three hour rolling average firebox temperature is &lt; 1,200 °F.</p> <p>A deviation triggers an immediate inspection, corrective action, and reporting within 48 hours or two work days.</p> <p>The minimum firebox temperature may be modified upon receipt of Departmental approval.</p> <p>If the accumulated hours of deviation events occurring exceeds 2% of the sulfur recovery system operating time during any</p>

## Quantum Resources Management-Chatom Plant

### SRU & Thermal Oxidizer

<b>Monitoring approach:</b>	<i>Sulfur Recovery Unit Compliance Assurance Monitoring (CAM)</i>	<i>Thermal Oxidizer Compliance Assurance Monitoring (CAM)</i>
	quarterly reporting period, a Quality Improvement Plan shall be developed and implemented.	quarterly reporting period, a Quality Improvement Plan shall be developed and implemented.
<b>III. Performance criteria</b>		
A. Data representiveness	<p>The location of each inlet sensor shall be located upstream of the sulfur recovery unit and shall consist of a single device that monitors all streams or multiple sensors that monitors individual or multiple streams.</p> <p>The location of the effluent sensor shall be within the thermal oxidizer stack and shall consist of a multiple device that monitors all appropriate parameters.</p> <p>The volume sensor shall be accurate to within <math>\pm 0.50\%</math>.</p> <p>The content sensor shall be accurate to within <math>\pm 5.0\%</math>.</p>	<p>Each temperature sensor shall be located within the combustion chamber or immediately downstream of the combustion chamber.</p> <p>The temperature sensor shall be accurate to within <math>\pm 4^\circ\text{F}</math> or <math>0.75\%</math>.</p>
B. Verification of operational status	Not applicable	Not applicable
C. QA/QC practices & criteria	<p>A program for the continuous emission monitoring system shall be developed and implemented that meets the requirements specified in the following regulations:</p> <p>§60.13 of 40 CFR Part 60, Sub. A 40 CFR Part 60, App F 40 CFR Part 60, App B, PS 2 40 CFR Part 60, App B, PS 6</p> <p>Each bypass sensor shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide adequate assurance that the device is calibrated accurately.</p> <p>If a sensor fails its calibration test, the sensor shall be taken out of service until repairs and/or replacements are made and a new calibration test is undertaken and passed.</p>	<p>Each temperature sensor shall be calibrated at a frequency in accordance with the manufacturer's specifications, other written procedures that provide adequate assurance that the device is calibrated accurately.</p> <p>If the sensor fails its calibration test, the sensor shall be taken out of service until repairs and/or replacements are made and a new calibration test is undertaken and passed.</p>

## Quantum Resources Management-Chatom Plant

## SRU & Thermal Oxidizer

Monitoring approach:	Sulfur Recovery Unit Compliance Assurance Monitoring (CAM)	Thermal Oxidizer Compliance Assurance Monitoring (CAM)
D. Monitoring frequency	<p>Inlet volume or inlet volume parameters and inlet content shall be measured continuously.</p> <p>Bypass volume parameters shall be measured continuously.</p> <p>Sulfur content of each bypass stream shall be determined annually or as requested by Department.</p> <p>Effluent volume or effluent volume parameters and effluent content shall be measured continuously.</p>	<p>Temperature shall be measured continuously.</p>
Data collection procedure	<p>Calculate and record hourly and rolling three hour averages of the following items:</p> <ul style="list-style-type: none"> <li>Volumes &amp; sulfur mass rates of: <ul style="list-style-type: none"> <li>Inlet streams</li> <li>Bypass streams</li> <li>Thermal oxidizer effluent <ul style="list-style-type: none"> <li>Actual sulfur dioxide emission rate</li> <li>Allowed sulfur recovery efficiency</li> <li>Actual sulfur recovery efficiency</li> </ul> </li> </ul> </li> </ul> <p>Record each monthly H<sub>2</sub>S concentration analysis.</p> <p>Record calibration results.</p> <p>Record inspection results and corrective actions taken.</p>	<p>Temperature shall be measured continuously.</p> <p>Record hourly and rolling three hour average firebox temperature.</p> <p>Record calibration results.</p> <p>Record inspection results and corrective actions taken.</p>
Averaging period	Rolling three hours	Rolling three hours

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### **Appendix C: Emergency Flare Monitoring**

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# Quantum Resources Management-Chatom Plant

## Emergency Flare Monitoring

Monitoring approach:	Periodic Monitoring	Compliance Assurance Monitoring (CAM)
<b>I. Indicator</b>	<b>H<sub>2</sub>S feed rate</b>	<b>Operate flare with a flame or spark present at all times when a process gas stream may be sent to it.</b>
A. Measurement approach	<p>Inlet feed volume shall be monitored with a system capable of measuring and recording the flow rate and/or the parameters utilized for flow rate calculations or estimated utilizing material balances, computer simulations, special testing, etc.</p> <p>Inlet feed analyzed once every four months for its H<sub>2</sub>S content.</p> <p>Frequency may be modified upon receipt of Departmental approval.</p>	<p>The flare tip shall be equipped either with a continuous sparking flame igniter that is monitored by an amp meter or an equivalent device OR visual observation OR with a continuously burning pilot light that is monitored with either a thermocouple or an equivalent device or by visual observation.</p>
<b>II. Indicator range</b>	<b>H<sub>2</sub>S feed rate ≤2,440 Lbs/Hr</b>	<b>Presence of a flame or spark at flare tip</b>
	<p>A deviation is defined as anytime the average H<sub>2</sub>S feed rate is &gt; 2,440 lb/hr.</p> <p>If the accumulated hours of deviation events occurring exceeds 5% of the flare's operating time during any semi- annual period triggers an immediate running of an air quality modeling study that utilizes the maximum inlet mass and flow rates that occurred during this period shall be undertaken.</p> <p>The maximum feed rate may be modified upon receipt of Departmental approval.</p>	<p>A deviation is defined as when there was no spark or flame present at the flare tip when a process gas stream could be vented to it.</p> <p>A deviation triggers an immediate inspection, corrective action, and reporting within 48 hours or two work days.</p>
A QIP threshold	Not applicable	<p>If more than 6 deviations occur during any semi-annual reporting period, a Quality Improvement Plan shall be developed and implemented.</p>
<b>III. Performance criteria</b>		
A. Data representiveness	<p>Each volume monitor shall be located upstream of the flare and shall consist of a single device that monitors all streams or multiple devices that monitor individual or multiple streams.</p> <p>The sample point for obtaining the H<sub>2</sub>S content shall be located at or upstream of each volume monitor.</p>	<p>Each flame igniter or flame monitor shall be located at the flare tip and focused on the area where gas exits the flare tip.</p> <p>Visual observations shall be made from the location that provides the best view of the flare tip and/or flare pilot lights or flare igniter.</p>

# Quantum Resources Management-Chatom Plant

## Emergency Flare Monitoring

Monitoring approach:	Periodic Monitoring	Compliance Assurance Monitoring (CAM)
B. Verification of operational status	Not applicable	Not applicable
C. QA/QC practices & criteria	Each volume monitor shall be maintained and calibrated in accordance with the manufacturer's specifications.	Each flame igniter or flame monitor shall be maintained and calibrated in accordance with the manufacturer's specifications, other written procedures that provide adequate assurance that the device is properly maintained and calibrated accurately, or at least annually whichever is more frequent..  Repairs and/or replacements shall be made immediately when non-functioning or damaged parts are found.  Flame igniter arc length shall not exceed 10%of arc interval and shall have an arcing frequency of no greater than once every 3 seconds.
D. Monitoring frequency	Inlet volume shall be measured continuously  Inlet feed H <sub>2</sub> S content sample obtained and analyzed once every four months.	Pilot flame shall be monitored either continuously with a thermocouple or daily with visual inspections if operating staff is on site.  Flame igniter - arcing frequency shall be monitored either continuously with an amp meter or daily with visual inspections if operating staff is on site.
Data collection procedure	Calculate &/or record an inlet volume that is representative of the average daily volume entering the flare.  Record daily hours of operation  Record each H <sub>2</sub> S concentration analysis  Calculate & record H <sub>2</sub> S feed  Record time, date and results of each calibration  Record time, date and results of each inspection and corrective actions taken  Submit air quality modeling results to the Department within 60 days of the end of the semi-annual period.	Record time, date and duration of each incident of when no spark or flame was present at the flare tip when a process gas stream could have been sent to it.          Record time, date and results of each visual observation  Record time, date and results of each calibration  Record time, date and results of each inspection and corrective actions taken
Averaging period	One hour	Instantaneous

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### **Appendix D: Units Subject to Opacity Standard Monitoring**

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# Quantum Resources Management-Chatom Plant

## Units Subject to Opacity Standard

Monitoring approach:	Periodic Monitoring
<b>I. Indicator</b>	<b>Opacity</b>
A. Measurement approach	<p>Provided the unit referred to in the unit specific section is being operated and a daily visual inspection of the unit for visible emissions is required, the visual inspection shall meet the following requirements:</p> <ul style="list-style-type: none"> <li>Visual inspections must be conducted for a duration of at least 6 minutes during daylight hours, except as specified below <ul style="list-style-type: none"> <li>A daily visual inspection is not required during periods that the production facility is unmanned by plant personnel, when a process stream is not being sent to the thermal oxidizer, or when any of the other units subject to the state opacity standard is not being operated</li> </ul> </li> <li>If visible emissions, in excess of the opacity standards, are observed during the daily visual inspection of a unit, a visible emissions observation (VEO) shall be performed that meets the following requirements: <ul style="list-style-type: none"> <li>Duration of each observation shall be <math>\geq 15</math> minutes <u>AND</u> <math>\leq 60</math> minutes</li> <li>Each observation shall be conducted in accordance to either: <p>Test Method 9 of 40 CFR Part 60  - Method 9 shall only be performed by an individual certified in using that method  Or  Test Method 22 of 40 CFR Part 60</p> </li> </ul> </li> </ul>
<b>II. Indicator range</b>	<p><b>2<sup>nd</sup> 6-min. opacity average <math>\leq 20\%</math></b>  <b>Each 6-min. opacity average <math>\leq 40\%</math></b>  <b>Or</b>  <b>&gt; 12 minutes of visible emissions during observation</b></p> <p>An exceedance is defined as anytime the observed 6-minute average opacity exceeds 20% for the 2<sup>nd</sup> time when utilizing Method 9.</p> <p>An exceedance is defined as anytime the observed 6-minute average opacity exceeds 40% for the 1<sup>st</sup> time when utilizing Method 9.</p> <p>A deviation is defined as anytime the accumulated time in which visible emissions were observed exceeds 12 minutes per observation when utilizing Method 22.</p> <p>A deviation or exceedance triggers continued visible emissions observations at a frequency suitable to defining the emission deviation or exceedance event. One observation shall be undertaken to establish the end of the visible emission deviation event.</p> <p>A deviation or exceedance triggers an inspection, corrective action, and immediate reporting within 48 hours or two work days.</p>
<b>III. Performance criteria</b>	
A. Monitoring frequency	Daily visual inspection of each unit; Each occurrence of a VEO being performed

## Quantum Resources Management-Chatom Plant

### *Units Subject to Opacity Standard*

<b>Monitoring approach:</b>	<i>Periodic Monitoring</i>
Data collection procedure	<p>Record: Time, date, and duration of each daily visual inspection of each unit subject to the state opacity standards</p> <p>Record: Time, date, and duration of each occurrence when a VEO was performed on the flare or thermal oxidizer</p> <p>Each 15 second observation reading for the VEO</p> <p>Record: Each occurrence of VEO</p> <p>Time, date and results of corrective actions taken</p>
Averaging period	Six minutes

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## **Quantum Resources Management-Chatom Plant**

### **Appendix E: Emergency Flare Opacity Monitoring**

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## Quantum Resources Management-Chatom Plant

### *Opacity Monitoring for the Emergency Flare*

Monitoring approach:	<i>Periodic Monitoring</i>
<b>I. Indicator</b>	<b>Opacity for Emergency Flare (Flare No. 1) [§60.18(c)(1)]</b>
A. Measurement approach	<p>Provided the facility flare is being operated, a visual emission observation shall be undertaken within 30 minutes of commencing a flaring event.</p> <p>Duration of each observation shall be <math>\geq 5</math> minutes <u>AND</u> <math>\leq 120</math> minutes</p> <p>Each observation shall be conducted in accordance with Test Method 22 of 40 CFR Part 60</p>
<b>II. Indicator range</b>	<p><b>There shall be no visible emissions observed, except for periods not to exceed 5 minutes over any consecutive 2-hour period</b></p> <p>An exceedance is defined as anytime visible emissions are observed for more than 5 minutes over a consecutive 2-hour period when utilizing Method 22</p> <p>A deviation or exceedance triggers continued visible emissions observations at a frequency suitable to defining the emission deviation or exceedance event. One observation shall be undertaken to establish the end of the visible emission deviation event.</p> <p>A deviation or exceedance triggers an inspection, corrective action, and immediate reporting within 48 hours or two work days.</p>
<b>III. Performance criteria</b>	
A. Monitoring frequency	Each flaring event, or as set by the Department
Data collection procedure	<p>Record: Each flaring event, or as set by the Department</p> <p>Record: Clock time for the start of the observation period and the end of the observation period Duration of the Observation Period Emission Time</p> <p>Record: Each occurrence Time, date and results of corrective actions taken</p>
Averaging period	Not applicable